GenCore version 5.1.6


OM protein - protein search, using sw model

Run on: February 26, 2004, 10:20:52 ; Search time 56 Seconds
(without alignments)
141.274 Million cell updates/sec

Title: US-09-929-818-1
Perfect score: 143
Sequence: 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_29Jan04:*
1: geneseqp1980s:*
2: geneseqp1990s:*
3: geneseqp2000s:*
4: geneseqp2001s:*
5: geneseqp2002s:*
6: geneseqp2003as:*
7: geneseqp2003bs:*
8: geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 143 | 100.0 | 28 | 1 | AAP10172 | Aap10172 VIP. 3/20 |
| 2 | 143 | 100.0 | 28 | 1 | AAP71039 | Aap71039 Sequence |
| 3 | 143 | 100.0 | 28 | 2 | AAR34943 | Aar34943 Porcine V |
| 4 | 143 | 100.0 | 28 | 2 | AAR40272 | Aar40272 Native VI |
| 5 | 143 | 100.0 | 28 | 2 | AAR53111 | Aar53111 Bronchodi |
| 6 | 143 | 100.0 | 28 | 2 | AAR53109 | Aar53109 Bronchodi |
| 7 | 143 | 100.0 | 28 | 2 | AAR53110 | Aar53110 Bronchodi |
| 8 | 143 | 100.0 | 28 | 2 | AAR87092 | Aar87092 Vasoactiv |
| 9 | 143 | 100.0 | 28 | 2 | AAR83785 | Aar83785 VIP. 2/19 |
| 10 | 143 | 100.0 | 28 | 2 | AAR97810 | Aar97810 Vasoactiv |
| 11 | 143 | 100.0 | 28 | 2 | AAR93023 | Aar93023 Human glu |
| 12 | 143 | 100.0 | 28 | 2 | AAW65188 | Aaw65188 Vasoactiv |
| 13 | 143 | 100.0 | 28 | 2 | AAW06120 | Aaw06120 Human VIP |
| 14 | 143 | 100.0 | 28 | 2 | AAW06119 | Aaw06119 Mouse VIP |
| 15 | 143 | 100.0 | 28 | 2 | AAW06114 | Aaw06114 Rabbit VI |
| 16 | 143 | 100.0 | 28 | 2 | AAW06113 | Aaw06113 Macaque V |
| 17 | 143 | 100.0 | 28 | 2 | AAW06121 | Aaw06121 Pig VIP p |
| 18 | 143 | 100.0 | 28 | 2 | AAW06122 | Aaw06122 Goat VIP |
| 19 | 143 | 100.0 | 28 | 2 | AAW06115 | Aaw06115 Dog VIP p |
| 20 | 143 | 100.0 | 28 | 2 | AAW06112 | Aaw06112 Sheep VIP |
| 21 | 143 | 100.0 | 28 | 2 | AAW37791 | Aaw37791 Vasoactiv |
| 22 | 143 | 100.0 | 28 | 2 | AAW71677 | Aaw71677 Vasoactiv |
| 23 | 143 | 100.0 | 28 | 2 | AAY30769 | Aay30769 Vasoactiv |
| 24 | 143 | 100.0 | 28 | 2 | AAY44196 | Aay44196 Human vas |
| 25 | 143 | 100.0 | 28 | 3 | AAY94560 | Aay94560 Vasoactiv |
| 26 | 143 | 100.0 | 28 | 4 | AAB85707 | Aab85707 Peptide h |
| 27 | 143 | 100.0 | 28 | 4 | AAB85710 | Aab85710 Peptide h |
| 28 | 143 | 100.0 | 28 | 4 | AAB91279 | Aab91279 Vasoactiv |
| 29 | 143 | 100.0 | 28 | 4 | AAB91278 | Aab91278 Vasoactiv |
| 30 | 143 | 100.0 | 28 | 4 | AAE12028 | Aae12028 Porcine v |
| 31 | 143 | 100.0 | 28 | 4 | AAB37111 | Aab37111 Human vas |
| 32 | 143 | 100.0 | 28 | 4 | AAG70459 | Aag70459 Vasoactiv |
| 33 | 143 | 100.0 | 28 | 4 | AAB50845 | Aab50845 Human pro |
| 34 | 143 | 100.0 | 28 | 4 | AAU09653 | Aau09653 Porcine i |
| 35 | 143 | 100.0 | 28 | 4 | AAB45614 | Aab45614 Native va |
| 36 | 143 | 100.0 | 28 | 5 | AAE19604 | Aae19604 Human ste |
| 37 | 143 | 100.0 | 28 | 5 | AAE19627 | Aae19627 Human vas |
| 38 | 143 | 100.0 | 28 | 5 | AAE19603 | Aae19603 Human vas |
| 39 | 143 | 100.0 | 28 | 5 | ABB06677 | Abb06677 Mammalian |
| 40 | 143 | 100.0 | 28 | 5 | AAU85989 | Aau85989 Modified |
| 41 | 143 | 100.0 | 28 | 5 | AAU97783 | Aau97783 Tumour sp |
| 42 | 143 | 100.0 | 28 | 5 | ABG93952 | Abg93952 Human vas |
| 43 | 143 | 100.0 | 28 | 5 | ABB07010 | Abb07010 Neurite i |
| 44 | 143 | 100.0 | 28 | 5 | ABB04441 | Abb04441 Vasoactiv |
| 45 | 143 | 100.0 | 28 | 5 | AAO18306 | Aao18306 Human vas |

ALIGNMENTS

RESULT 1
AAP10172
ID AAP10172 standard; peptide; 28 AA.
XX
AC AAP10172;
XX
DT 25-MAR-2003 (revised)
DT 21-DEC-1992 (first entry)
XX
DE VIP.
XX
KW Vasoactive intestinal polypeptide;
KW allergic asthma. chemical mediator isolation-inhibiting action.
XX
OS Homo sapiens.
XX
PN JP56128721-A.
XX
PD 08-OCT-1981.
XX
PF 12-MAR-1980; 80JP-00030308.
XX
PR 12-MAR-1980; 80JP-00030308.
XX
PA (EISA ) EISAI CO LTD.
XX
DR WPI; 1981-86052D/47.
XX
PT Antiallergic agent comprises peptide - contg. 28 amino acid units, is
PT active against e.g. bronchial asthma and hay fever.
XX
PS Claim 1; Page 1; 3pp; Japanese.
XX
CC The sequence given can be used as the active component in an antiallergic
CC agent. Vasoactive intestinal polypeptide (VIP) has chemical mediator
CC isolation-inhibiting action and is effective for therapy and prevention
CC of various allergic diseases, such as allergic rhinitus, bronchial
CC asthma, allergic asthma, hay fever, urticaria, eczema, atopic dermatitis
CC etc. Since it also has specific bronchial smooth muscle relaxant action,
CC it is esp. useful for treating and preventing bronchial and allergic
CC asthma. (Updated on 25-MAR-2003 to correct PR field.) (Updated on 25-MAR-
CC 2003 to correct PA field.)
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 1; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
```

RESULT 2
AAP71039
ID  AAP71039 standard; peptide; 28 AA.
XX
AC  AAP71039;
XX
DT  03-OCT-2002  (revised)
DT  05-APR-1991  (first entry)
XX
DE  Sequence of active ingredient in hair growth promoting compsn.
XX
KW  Vasoactive intestinal tract polypeptide; digestive tract polypeptide;
KW  hair growth promoter.
XX
OS  Synthetic.
XX
PN  EP225639-A.
XX
PD  16-JUN-1987.
XX
PF  10-DEC-1986;  86EP-00117190.
XX
PR  10-DEC-1985;  85JP-00276099.
XX
PA  (MEIJ ) MEIJI SEIKA KAISHA.
XX
PI  Yanaihara N,  Watanabe S,  Kasai M,  Sato T,  Kikkoji T;
XX
DR  WPI; 1987-164873/24.
XX
PT  Hair growth promoting compsns. - contg. vasoactive intestinal polypeptide
PT  and carrier.
XX
PS  Claim 1; Page 8; 10pp; English.
XX
CC  When applied to the skin, the peptide causes a local increase in blood
CC  flow and promotes hair growth. It is the natural peptide known as
CC  vasoactive intestinal polypeptide which has been isolated from the
CC  digestive tract. (Updated on 03-OCT-2002 to add missing OS field.)
XX
SQ  Sequence 28 AA;

```
  Query Match             100.0%;  Score 143;  DB 1;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
```

RESULT 3
AAR34943
ID  AAR34943 standard; peptide; 28 AA.
XX
AC  AAR34943;
XX
DT  25-MAR-2003  (revised)
DT  28-JUL-1993  (first entry)
XX
DE  Porcine VIP.
XX
KW  Vasoactive intestinal peptide; asthma; bronchodilation activity;
KW  bronchiotracheal constrictive disorders.
XX
OS  Sus scrofa.
XX
PN  EP536741-A2.
XX
PD  14-APR-1993.
XX
PF  08-OCT-1992;  92EP-00117185.
XX
PR  11-OCT-1991;  91US-00773747.
XX
PA  (HOFF ) HOFFMANN LA ROCHE & CO AG F.
XX
PI  Bolin DR,  Odonnell M;
XX
DR  WPI; 1993-118996/15.
XX
PT  New cyclic vasoactive intestinal peptide (VIP) analogues - are useful for
PT  the treatment of bronchotracheal constructive disorders e.g. asthma.
XX
PS  Disclosure; Page 65; 141pp; English.
XX
CC  The sequence is that of porcine vasoactive intestinal peptide (VIP) as
CC  claimed in EP-325044. The peptide sequence was used to design cyclic
CC  analogues of VIP which have enhanced bronchodilation activity without any
CC  observable side effects such as cardiovascular side effects. The
CC  bronchodilation produced by the analogues can be sustained for more than
CC  two hours. The analogues may be used for the treatment of bronchotracheal
CC  constrictive disorders, e.g. asthma. See also RR3944-5016. (Updated on 25
CC  -MAR-2003 to correct PN field.)
XX
SQ  Sequence 28 AA;

```
  Query Match             100.0%;  Score 143;  DB 2;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
```

RESULT 4
AAR40272
ID  AAR40272 standard; protein; 28 AA.
XX
AC  AAR40272;
XX
DT  25-MAR-2003  (revised)
DT  09-FEB-1994  (first entry)
XX
DE  Native VIP.
XX
KW  Vasoactive intestinal peptide; VIP; bronchodilator; cardiovascular;
KW  side effect; bronchoconstrictive disorder; asthma.
XX
OS  Sus scrofa.
XX
FH  Key             Location/Qualifiers
FT  Modified-site   28
FT                  /note= "C-terminal is amidated"
XX
PN  US5234907-A.
XX
PD  10-AUG-1993.
XX
PF  24-APR-1991;  91US-00690300.
XX
PR  30-JUN-1989;  89US-00374503.
XX
PA  (HOFF ) HOFFMANN LA ROCHE INC.
XX
PI  Bolin DR;
XX
DR  WPI; 1993-264645/33.
XX

PT New vasoactive intestinal peptide analogues - are potent bronchodilators
PT without cardiovascular side effects, used for treating, e.g. asthma.
XX
PS Disclosure; Page 25-26; 66pp; English.
XX
CC VIP (AAR40272) was used in the prodn. of analogues (AAR40273-78: generic
CC formulae; AAR40279-364: examples). The VIP analogues are potent
CC bronchodilators and have no cardiovascular side effects. They are used
CC for the treatment of bronchoconstrictive disorders, e.g. asthma. (Updated
CC on 25-MAR-2003 to correct PF field.)
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 5
AAR53111
ID AAR53111 standard; peptide; 28 AA.
XX
AC AAR53111;
XX
DT 20-DEC-1994 (first entry)
XX
DE Bronchodilator peptide #21.
XX
KW Peptide; vasoactive intestinal peptide; VIP; relax; smooth muscle;
KW selectively; toxicity; mammal; bronchodilator.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 10
FT /note= "D-form residue"
FT Misc-difference 22
FT /note= "D-form residue"
FT Modified-site 28
FT /note= "Amidated C-terminal"
XX
PN JP06092991-A.
XX
PD 05-APR-1994.
XX
PF 28-FEB-1991; 91JP-00034335.
XX
PR 28-FEB-1991; 91JP-00034335.
XX
PA (DAIL ) DAICEL CHEM IND LTD.
PA (MEIJ ) MEIJI SEIKA KAISHA.
XX
DR WPI; 1994-147946/18.
XX
PT Active peptide(s), having smooth muscle relaxing activity - useful as
PT bronchodilators.
XX
PS Disclosure; Page 5; 29pp; Japanese.
XX
CC The sequences given in AAR53091-111 are synthetic peptides based on
CC vasoactive intestinal peptide (VIP) which have the activity of relaxing
CC the smooth muscle selectively and are only low toxic-non- toxic to
CC mammals. These peptides may be used as bronchodilators. They are prepared
CC by solid phase synthesis using a resin having an amino functional group
CC capable of bonding to the amino acid at the carboxy terminal through a
CC carboxyl group and fixing the peptide chain during the synthesis
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 6
AAR53109
ID AAR53109 standard; peptide; 28 AA.
XX
AC AAR53109;
XX
DT 20-DEC-1994 (first entry)
XX
DE Bronchodilator peptide #19.
XX
KW Peptide; vasoactive intestinal peptide; VIP; relax; smooth muscle;
KW selectively; toxicity; mammal; bronchodilator.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 10
FT /note= "D-form residue"
FT Modified-site 28
FT /note= "Amidated C-terminal"
XX
PN JP06092991-A.
XX
PD 05-APR-1994.
XX
PF 28-FEB-1991; 91JP-00034335.
XX
PR 28-FEB-1991; 91JP-00034335.
XX
PA (DAIL ) DAICEL CHEM IND LTD.
PA (MEIJ ) MEIJI SEIKA KAISHA.
XX
DR WPI; 1994-147946/18.
XX
PT Active peptide(s), having smooth muscle relaxing activity - useful as
PT bronchodilators.
XX
PS Disclosure; Page 5; 29pp; Japanese.
XX
CC The sequences given in AAR53091-111 are synthetic peptides based on
CC vasoactive intestinal peptide (VIP) which have the activity of relaxing
CC the smooth muscle selectively and are only low toxic-non- toxic to
CC mammals. These peptides may be used as bronchodilators. They are prepared
CC by solid phase synthesis using a resin having an amino functional group
CC capable of bonding to the amino acid at the carboxy terminal through a
CC carboxyl group and fixing the peptide chain during the synthesis
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 7
AAR53110
ID AAR53110 standard; peptide; 28 AA.
XX
AC AAR53110;
XX

DT 20-DEC-1994 (first entry)
XX
DE Bronchodilator peptide #20.
XX
KW Peptide; vasoactive intestinal peptide; VIP; relax; smooth muscle;
KW selectively; toxicity; mammal; bronchodilator.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 22
FT /note= "D-form residue"
FT Modified-site 28
FT /note= "Amidated C-terminal"
XX
PN JP06092991-A.
XX
PD 05-APR-1994.
XX
PF 28-FEB-1991; 91JP-00034335.
XX
PR 28-FEB-1991; 91JP-00034335.
XX
PA (DAIL ) DAICEL CHEM IND LTD.
PA (MEIJ ) MEIJI SEIKA KAISHA.
XX
DR WPI; 1994-147946/18.
XX
PT Active peptide(s), having smooth muscle relaxing activity - useful as
PT bronchodilators.
XX
PS Disclosure; Page 5; 29pp; Japanese.
XX
CC The sequences given in AAR53091-111 are synthetic peptides based on
CC vasoactive intestinal peptide (VIP) which have the activity of relaxing
CC the smooth muscle selectively and are only low toxic-non- toxic to
CC mammals. These peptides may be used as bronchodilators. They are prepared
CC by solid phase synthesis using a resin having an amino functional group
CC capable of bonding to the amino acid at the carboxy terminal through a
CC carboxyl group and fixing the peptide chain during the synthesis
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 8
AAR87092
ID AAR87092 standard; peptide; 28 AA.
XX
AC AAR87092;
XX
DT 06-JUN-1996 (first entry)
XX
DE Vasoactive intestinal peptide, forms part of gene transfer complex.
XX
KW Porcine; VIP; cell surface receptor; ligand; gene transfer; transfection;
KW gene therapy; vaccine.
XX
OS Sus scrofa.
XX
FH Key Location/Qualifiers
FT Modified-site 28
FT /note= "amidated"
XX
PN FR2719316-A1.
XX
PD 03-NOV-1995.
XX
PF 28-APR-1994; 94FR-00005174.
XX
PR 28-APR-1994; 94FR-00005174.
XX
PA (IDMI-) IDM IMMUNO-DESIGNED MOLECULES.
XX
PI Midoux P, Erbacher P, Roche-Degremont A, Monsigny M;
XX
DR WPI; 1995-375617/49.
XX
PT New nucleic acid complexes with cationic polymers - useful for genetic
PT transformation of cells.
XX
PS Claim 11; Page 43; 58pp; French.
XX
CC In novel complexes of negatively-charged nucleic acids and positively-
CC charged polymers, the polymers comprise monomer subunits bearing NH3+
CC groups, at least 10% of which are replaced by uncharged amino groups
CC bearing a substit. that has at least one -OH group and is not recognised
CC by cell membrane receptors; the side-chain groups of the polymer (i.e.
CC the NH3+ and/or OH groups) may be substd. by a group that is recognised
CC by a cell membrane receptor, provided that at least 30% of the NH3+
CC groups remain free. The complexes are useful for transfecting particular
CC nucleic acid sequences into particular cell types, depending on the
CC identity of the cell membrane receptor ligands involved, e.g. for gene
CC therapy or prepn. of vaccines. Preferred ligands are oligoglycoside
CC antigens recognised by lectins, natural metabolites (such as biotin,
CC tetrahydrofolate, folic acid or carnitine) or peptides (pref. vasoactive
CC intestinal peptide, atrial natriuretic peptide, lipocortin, bradykinin,
CC peptide hormones such as alpha-MSH, chemotactic factors and integrin
CC ligands)
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 9
AAR83785
ID AAR83785 standard; peptide; 28 AA.
XX
AC AAR83785;
XX
DT 27-FEB-1996 (first entry)
XX
DE VIP.
XX
KW VIP; vasoactive intestinal polypeptide; peptide hormone; glucagon;
KW secretin; nervous system; digestive system; smooth muscle; relaxant;
KW bronchial asthma; impotence; therapy.
XX
OS Sus scrofa.
XX
FH Key Location/Qualifiers
FT Misc-difference 29
FT /note= "amidated"
XX
PN EP663406-A1.
XX
PD 19-JUL-1995.
XX
PF 19-DEC-1994; 94EP-00120126.
XX
PR 20-DEC-1993; 93JP-00319815.
XX

PA (SANW ) SANWA KAGAKU KENKYUSHO CO.
XX
PI Noda H, Yamakawa H, Yoshina S, Ishida T, Tomiya N;
XX
DR WPI; 1995-247502/33.
XX
PT New modified form of vasoactive intestinal polypeptide - with C-terminal
PT substd. amide residue, has greater in vivo stability and persistence,
PT useful for treating asthma and impotence.
XX
PS Disclosure; Page 3; 16pp; English.
XX
CC This sequence represents vasoactive intestinal polypeptide (VIP). VIP is
CC a peptide hormone that shows smooth muscle relaxant activity. The
CC structure of VIP is similar to that of the other peptides in the glucagon
CC -secretin family, to which it belongs. VIP is present in the nervous
CC system and the digestive system tracts. It is also found in the lungs of
CC normal patients (however, it is not found in the lungs of people
CC suffering from bronchial asthma). The sequences shown in AAR83784 and
CC AAR83786 are analogues of this sequence. These analogues are found to be
CC resistant to protease digestion. The analogues can be used to treat
CC asthma (by inhalation) and impotence (percutaneously). Compared to
CC natural VIP, the analogue sequences have better in vivo stability. The
CC analogue sequences are also more persistent than natural VIP and have
CC excellent affinity for biological membranes
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 10
AAR97810
ID AAR97810 standard; peptide; 28 AA.
XX
AC AAR97810;
XX
DT 22-AUG-1996 (first entry)
XX
DE Vasoactive Intestinal Peptide VIP(1-28), for dermal ulcer treatment.
XX
KW Vasoactive intestinal peptide; VIP; vasodilation; hyperkinemic; skin;
KW burn; decubitis; diabetes; ulcer; bedsore; pressure sore.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 28
FT /note= "amidated"
XX
PN JP08040926-A.
XX
PD 13-FEB-1996.
XX
PF 03-AUG-1994; 94JP-00182457.
XX
PR 03-AUG-1994; 94JP-00182457.
XX
PA (YAKU-) YAKURIGAKU CHUO KENKYUSHO KK.
XX
DR WPI; 1996-157021/16.
XX
PT Remedy for dermal ulcer - comprises vasoactive intestinal polypeptide as
PT active component.
XX
PS Claim 1; Page 2; 4pp; Japanese.
XX
CC Vasoactive intestinal peptide and related compounds are known to have
CC strong vasodilatory activity. They have now been found to be effective in
CC the treatment of skin ulcers, esp. decubitus ulcers but also burn ulcers,
CC diabetic ulcers, etc. VIP(1-28) is the preferred peptide for use in the
CC novel skin ulcer remedy
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 11
AAR93023
ID AAR93023 standard; protein; 28 AA.
XX
AC AAR93023;
XX
DT 09-AUG-1996 (first entry)
XX
DE Human glucagon degrading enzyme - VIP substrate.
XX
KW Glucagon degrading enzyme; catalyst; cleavage; selectin; human; primer;
KW vasoactive intestinal peptide; VIP; pancreatic carcimoma cell line; PCR;
KW amplification; polymerase chain reaction; probe; expression vector;
KW eukaryote; SV40 promoter; COS-7.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Cleavage-site 17. .18
FT Modified-site 28
FT /note= "contains C-terminal amide group"
XX
PN JP08023972-A.
XX
PD 30-JAN-1996.
XX
PF 19-JUL-1994; 94JP-00187936.
XX
PR 19-JUL-1994; 94JP-00187936.
XX
PA (SUNR ) SUNTORY LTD.
XX
DR WPI; 1996-133414/14.
XX
PT New glucagon decomposing enzyme, and DNA encoding it - for specifically
PT cleaving glucagon and vasoactive intestinal peptide, in the prevention
PT and treatment of diseases caused by excess glucagon and VIP.
XX
PS Claim 1; Page 2; 18pp; Japanese.
XX
CC A novel gene encoding a glucagon degrading enzyme (GDE; AAT11575) was
CC isolated from a human pancreatic carcinoma cell line HPC-Yo cDNA library.
CC The enzyme has a mol. wt. 83 kD, a pH optimum of 6.8 and catalyses the
CC cleavage of glucagon, vasoactive intestinal peptide and selectin
CC (AAR93022-4). The gene encoding the enzyme was isolated by screening the
CC library with an anti-GDE peptide antibody, amplifying the inserts with
CC the primers AAT18903-4 and probing the fragments with the probe AAT18905.
CC This screening resulted in the full length clone designated lambda GDE4-
CC 2. The coding region of the clone was subsequently PCR amplified by the
CC primers AAT11576-7 and inserted into the eukaryotic expression vector
CC pKDCR under control of the SV40 promoter for production of the protein in
CC COS-7 cells. The protein is useful in preventing and treating diseases
CC characterised by an excess of glucagon or vasoactive intestinal peptide
XX
SQ Sequence 28 AA;

```
  Query Match             100.0%;  Score 143;  DB 2;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 12
AAW65188
ID   AAW65188 standard; peptide; 28 AA.
XX
AC   AAW65188;
XX
DT   02-OCT-1998  (first entry)
XX
DE   Vasoactive intestinal peptide (VIP) analogue.
XX
KW   Bradykinin; N-benzylglycine; agonist; receptor study; antagonist;
KW   achiral; analgesic; luteinising hormone-releasing hormone; LHRH;
KW   vasopressin; vasoactive intestinal peptide; VIP.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   28
FT                   /note= "C-terminal amide"
XX
PN   US5527882-A.
XX
PD   18-JUN-1996.
XX
PF   07-NOV-1994;   94US-00335202.
XX
PR   07-JUL-1989;   89US-00376839.
PR   16-SEP-1992;   92US-00945664.
XX
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Young JD,  Mitchell AR;
XX
DR   WPI; 1996-299898/30.
XX
PT   New bradykinin analogues contg. N-benzyl-glycine - useful as bradykinin
PT   agonists or antagonists, useful e.g. as analgesics.
XX
PS   Disclosure; Col 7-8; 15pp; English.
XX
CC   The invention relates to the obtaining of a potent agonist or antagonist
CC   peptide by the replacement of selected amino acids with synthetic achiral
CC   amino acids. The present sequence represents a vasoactive intestinal
CC   peptide (VIP) analogue, where at least one of Phe6 and Met17 is intended
CC   to be replaced by N-benzylglycine, N-cyclohexylmethylglycine or the ring
CC   substituted derivatives thereof
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 2;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 13
AAW06120
ID   AAW06120 standard; peptide; 28 AA.
XX
AC   AAW06120;
XX
DT   16-JUL-1997  (first entry)
XX
DE   Human VIP peptide.
XX
KW   Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW   food-producing animal; egg production; feed utilisation.
XX
OS   Homo sapiens.
XX
PN   WO9634958-A1.
XX
PD   07-NOV-1996.
XX
PF   03-MAY-1996;   96WO-CA000280.
XX
PR   03-MAY-1995;   95US-00433108.
XX
PA   (BIOS-) BIOSTAR INC.
XX
PI   Cox GJ,  Weeks-Levy C;
XX
DR   WPI; 1996-506160/50.
XX
PT   New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT   for increasing egg prodn. or animals for increasing food utilisation.
XX
PS   Disclosure; Fig 1; 47pp; English.
XX
CC   The sequences given in AAW06110-23 represent vasointestinal peptides
CC   (VIP's) from various species. These peptides, or fragments representing
CC   residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC   28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC   turkeys, or food-producing animals against VIP. The immunisation is
CC   useful for increasing egg prodn. in bird species and for increasing
CC   efficiency of feed utilisation and rate of gain in food producing animals
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 2;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 14
AAW06119
ID   AAW06119 standard; peptide; 28 AA.
XX
AC   AAW06119;
XX
DT   16-JUL-1997  (first entry)
XX
DE   Mouse VIP peptide.
XX
KW   Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW   food-producing animal; egg production; feed utilisation.
XX
OS   Mus musculus.
XX
PN   WO9634958-A1.
XX
PD   07-NOV-1996.
XX
PF   03-MAY-1996;   96WO-CA000280.
XX
PR   03-MAY-1995;   95US-00433108.
XX
PA   (BIOS-) BIOSTAR INC.
XX
PI   Cox GJ,  Weeks-Levy C;
```

```
XX
DR   WPI; 1996-506160/50.
XX
PT   New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT   for increasing egg prodn. or animals for increasing food utilisation.
XX
PS   Disclosure; Fig 1; 47pp; English.
XX
CC   The sequences given in AAW06110-23 represent vasointestinal peptides
CC   (VIP's) from various species. These peptides, or fragments representing
CC   residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC   28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC   turkeys, or food-producing animals against VIP. The immunisation is
CC   useful for increasing egg prodn. in bird species and for increasing
CC   efficiency of feed utilisation and rate of gain in food producing animals
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 2;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 15
AAW06114
ID   AAW06114 standard; peptide; 28 AA.
XX
AC   AAW06114;
XX
DT   16-JUL-1997  (first entry)
XX
DE   Rabbit VIP peptide.
XX
KW   Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW   food-producing animal; egg production; feed utilisation.
XX
OS   Oryctolagus cuniculus.
XX
PN   WO9634958-A1.
XX
PD   07-NOV-1996.
XX
PF   03-MAY-1996;   96WO-CA000280.
XX
PR   03-MAY-1995;   95US-00433108.
XX
PA   (BIOS-) BIOSTAR INC.
XX
PI   Cox GJ,  Weeks-Levy C;
XX
DR   WPI; 1996-506160/50.
XX
PT   New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT   for increasing egg prodn. or animals for increasing food utilisation.
XX
PS   Disclosure; Fig 1; 47pp; English.
XX
CC   The sequences given in AAW06110-23 represent vasointestinal peptides
CC   (VIP's) from various species. These peptides, or fragments representing
CC   residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC   28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC   turkeys, or food-producing animals against VIP. The immunisation is
CC   useful for increasing egg prodn. in bird species and for increasing
CC   efficiency of feed utilisation and rate of gain in food producing animals
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 2;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 16
AAW06113
ID   AAW06113 standard; peptide; 28 AA.
XX
AC   AAW06113;
XX
DT   16-JUL-1997  (first entry)
XX
DE   Macaque VIP peptide.
XX
KW   Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW   food-producing animal; egg production; feed utilisation.
XX
OS   Macaca fuscata.
XX
PN   WO9634958-A1.
XX
PD   07-NOV-1996.
XX
PF   03-MAY-1996;   96WO-CA000280.
XX
PR   03-MAY-1995;   95US-00433108.
XX
PA   (BIOS-) BIOSTAR INC.
XX
PI   Cox GJ,  Weeks-Levy C;
XX
DR   WPI; 1996-506160/50.
XX
PT   New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT   for increasing egg prodn. or animals for increasing food utilisation.
XX
PS   Disclosure; Fig 1; 47pp; English.
XX
CC   The sequences given in AAW06110-23 represent vasointestinal peptides
CC   (VIP's) from various species. These peptides, or fragments representing
CC   residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC   28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC   turkeys, or food-producing animals against VIP. The immunisation is
CC   useful for increasing egg prodn. in bird species and for increasing
CC   efficiency of feed utilisation and rate of gain in food producing animals
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 2;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 17
AAW06121
ID   AAW06121 standard; peptide; 28 AA.
XX
AC   AAW06121;
XX
DT   16-JUL-1997  (first entry)
XX
DE   Pig VIP peptide.
XX
KW   Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW   food-producing animal; egg production; feed utilisation.
XX
```

OS Sus scrofa.
XX
PN WO9634958-A1.
XX
PD 07-NOV-1996.
XX
PF 03-MAY-1996; 96WO-CA000280.
XX
PR 03-MAY-1995; 95US-00433108.
XX
PA (BIOS-) BIOSTAR INC.
XX
PI Cox GJ, Weeks-Levy C;
XX
DR WPI; 1996-506160/50.
XX
PT New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT for increasing egg prodn. or animals for increasing food utilisation.
XX
PS Disclosure; Fig 1; 47pp; English.
XX
CC The sequences given in AAW06110-23 represent vasointestinal peptides
CC (VIP's) from various species. These peptides, or fragments representing
CC residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC 28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC turkeys, or food-producing animals against VIP. The immunisation is
CC useful for increasing egg prodn. in bird species and for increasing
CC efficiency of feed utilisation and rate of gain in food producing animals
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 18
AAW06122
ID AAW06122 standard; peptide; 28 AA.
XX
AC AAW06122;
XX
DT 16-JUL-1997 (first entry)
XX
DE Goat VIP peptide.
XX
KW Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW food-producing animal; egg production; feed utilisation.
XX
OS Capra hircus.
XX
PN WO9634958-A1.
XX
PD 07-NOV-1996.
XX
PF 03-MAY-1996; 96WO-CA000280.
XX
PR 03-MAY-1995; 95US-00433108.
XX
PA (BIOS-) BIOSTAR INC.
XX
PI Cox GJ, Weeks-Levy C;
XX
DR WPI; 1996-506160/50.
XX
PT New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT for increasing egg prodn. or animals for increasing food utilisation.
XX
PS Disclosure; Fig 1; 47pp; English.
XX
CC The sequences given in AAW06110-23 represent vasointestinal peptides
CC (VIP's) from various species. These peptides, or fragments representing
CC residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC 28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC turkeys, or food-producing animals against VIP. The immunisation is
CC useful for increasing egg prodn. in bird species and for increasing
CC efficiency of feed utilisation and rate of gain in food producing animals
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 19
AAW06115
ID AAW06115 standard; peptide; 28 AA.
XX
AC AAW06115;
XX
DT 16-JUL-1997 (first entry)
XX
DE Dog VIP peptide.
XX
KW Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW food-producing animal; egg production; feed utilisation.
XX
OS Canis familiaris.
XX
PN WO9634958-A1.
XX
PD 07-NOV-1996.
XX
PF 03-MAY-1996; 96WO-CA000280.
XX
PR 03-MAY-1995; 95US-00433108.
XX
PA (BIOS-) BIOSTAR INC.
XX
PI Cox GJ, Weeks-Levy C;
XX
DR WPI; 1996-506160/50.
XX
PT New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT for increasing egg prodn. or animals for increasing food utilisation.
XX
PS Disclosure; Fig 1; 47pp; English.
XX
CC The sequences given in AAW06110-23 represent vasointestinal peptides
CC (VIP's) from various species. These peptides, or fragments representing
CC residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC 28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC turkeys, or food-producing animals against VIP. The immunisation is
CC useful for increasing egg prodn. in bird species and for increasing
CC efficiency of feed utilisation and rate of gain in food producing animals
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 20
AAW06112
ID AAW06112 standard; peptide; 28 AA.
XX
AC AAW06112;
XX
DT 16-OCT-2003 (revised)
DT 16-JUL-1997 (first entry)
XX
DE Sheep VIP peptide.
XX
KW Vasointestinal peptide; VIP; immunise; egg-laying bird; turkey;
KW food-producing animal; egg production; feed utilisation.
XX
OS Ovis aries.
XX
PN WO9634958-A1.
XX
PD 07-NOV-1996.
XX
PF 03-MAY-1996; 96WO-CA000280.
XX
PR 03-MAY-1995; 95US-00433108.
XX
PA (BIOS-) BIOSTAR INC.
XX
PI Cox GJ, Weeks-Levy C;
XX
DR WPI; 1996-506160/50.
XX
PT New recombinant vasoactive intestinal peptide(s) - used to immunise birds
PT for increasing egg prodn. or animals for increasing food utilisation.
XX
PS Disclosure; Fig 1; 47pp; English.
XX
CC The sequences given in AAW06110-23 represent vasointestinal peptides
CC (VIP's) from various species. These peptides, or fragments representing
CC residues 1-10 (peptide V1), 7-16 (peptide V2), 13-22 (peptide V3) and 19-
CC 28 (peptide V4) may be used for immunising egg-laying birds, pref.
CC turkeys, or food-producing animals against VIP. The immunisation is
CC useful for increasing egg prodn. in bird species and for increasing
CC efficiency of feed utilisation and rate of gain in food producing
CC animals. (Updated on 16-OCT-2003 to standardise OS field)
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 21
AAW37791
ID AAW37791 standard; peptide; 28 AA.
XX
AC AAW37791;
XX
DT 28-JUL-1998 (first entry)
XX
DE Vasoactive intestinal polypeptide.
XX
KW Peptidic ligand; vasoactive intestinal polypeptide-1 receptor;
KW VIP-1 receptor; VIP-2 receptor; agonist; bronchoconstrictive disorder;
KW asthma, chronic obstructive pulmonary disease; tumour; stroke;
KW myocardial infarction; gastroenterological disease; anti-inflammatory;
KW cell growth; organ transplantation; cancer; antagonist.
XX
OS Rattus sp.
XX
FH Key Location/Qualifiers
FT Modified-site 28
FT /label= Asn
FT /note= "amidated"
XX
PN WO9802453-A2.
XX
PD 22-JAN-1998.
XX
PF 15-JUL-1997; 97WO-BE000084.
XX
PR 15-JUL-1996; 96EP-00870092.
PR 19-SEP-1996; 96EP-00870121.
XX
PA (ULBR ) UNIV LIBRE BRUXELLES.
XX
PI Gourlet P, Robberecht P, Vandermeers A, Woelbroeck M;
XX
DR WPI; 1998-110523/10.
XX
PT New ligands for vasoactive intestinal peptide receptor - is useful for
PT treating VIP-related disorders, e.g. asthma, tumours, myocardial
PT infarction, stroke, inflammation or auto-immune disease.
XX
PS Example 1; Page 18; 38pp; English.
XX
CC This is the amino acid sequence of a vasoactive intestinal polypeptide
CC (VIP) receptor. It has two distinct receptors with seven transmembrane
CC helices named VIP-1 and VIP-2. The method of the invention involves the
CC development of peptidic ligands that can be used in the treatment of
CC bronchoconstrictive disorders, e.g. asthma, chronic obstructive pulmonary
CC disease (COPD), tumours, myocardial infarctions, strokes, the
CC regeneration of nerves as in post-traumatic injury, as anti-inflammatory
CC and anti-oxidant agent, to increase cell growth, as immuno-modulation
CC agent in the treatment of auto-immune diseases and for reducing side
CC effects in organ transplantation. They can also be used for detection and
CC diagnosis, e.g. for the identification of specific cancers such as breast
CC and prostate cancers, lung cancers, ovarian cancers and colon cancers.
CC The ligands can also be used for the identification of other ligands of
CC the VIP1 receptor
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 22
AAW71677
ID AAW71677 standard; peptide; 28 AA.
XX
AC AAW71677;
XX
DT 11-JAN-1999 (first entry)
XX
DE Vasoactive intestinal peptide-derived target peptide.
XX
KW Calmodulin; green fluorescent protein; GFP; cameleon;
KW fluorescence resonance energy transfer; FRET; calcium; sensor; analysis;
KW assay; vasoactive intestinal peptide; VIP.
XX
OS Synthetic.
XX
PN WO9840477-A1.
XX
PD 17-SEP-1998.
XX
PF 13-MAR-1998; 98WO-US004978.

XX
PR 14-MAR-1997; 97US-00818252.
PR 14-MAR-1997; 97US-00818253.
PR 27-AUG-1997; 97US-00919143.
XX
PA (REGC ) UNIV CALIFORNIA.
XX
PI Tsien RY, Miyawaki A;
XX
DR WPI; 1998-520809/44.
XX
PT New fluorescent protein sensors for detection of analytes - comprises a
PT binding protein moiety having an analyte binding region and bound donor
PT and acceptor fluorescent protein moieties.
XX
PS Disclosure; Page 21; 108pp; English.
XX
CC This peptide represents a target moiety from vasoactive intestinal
CC peptide that is recognised by calmodulin. The invention provides
CC fluorescent indicators and methods for using them to determine the
CC concentration of an analyte, such as calcium ion, in vitro and in vivo.
CC Fluorescent indicators include a binding protein moiety (e.g. calmodulin)
CC and donor and acceptor fluorescent protein moieties, preferably derived
CC from Aequorea green fluorescent protein (see AAW71645-48). The binding
CC protein preferably binds target peptides (see AAW71649-79) in addition to
CC the analyte. The target peptide moieties can be modified to enhance the
CC response of the fluorescent indicator to the analyte
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 23
AAY30769
ID AAY30769 standard; peptide; 28 AA.
XX
AC AAY30769;
XX
DT 22-NOV-1999 (first entry)
XX
DE Vasoactive intestinal peptide isolated from pig intestine.
XX
KW Vasoactive intestinal peptide; VIP; smooth-muscle relaxant; analogue;
KW cerebral lesion.
XX
OS Sus sp.
XX
FH Key Location/Qualifiers
FT Modified-site 28
FT /note= "amidated residue"
XX
PN FR2775902-A1.
XX
PD 17-SEP-1999.
XX
PF 13-MAR-1998; 98FR-00003125.
XX
PR 13-MAR-1998; 98FR-00003125.
XX
PA (ASSI-) ASSISTANCE PUBLIQUE HOPITAUX PARIS.
XX
PI Gressens P, Robberecht P;
XX
DR WPI; 1999-530437/45.
XX
PT Preventing and/or treating cerebral lesions in fetal, premature neonatal,
PT full-term neonatal or young infant humans.
XX
PS Disclosure; Page 1; 16pp; French.
XX
CC The present sequence represents a vasoactive intestinal peptide (VIP).
CC The peptide is a smooth-muscle relaxant. Analogues prepared from the
CC present sequence are used to prepare a medicament for preventing and/or
CC treating cerebral lesions in fetal, premature neonatal, full-term
CC neonatal or young infant humans
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 24
AAY44196
ID AAY44196 standard; peptide; 28 AA.
XX
AC AAY44196;
XX
DT 15-FEB-2000 (first entry)
XX
DE Human vasoactive intestinal peptide.
XX
KW Antiinflammatory; antibacterial; immunosuppressive; endotoxic shock;
KW mammal; agent; inhibitory; tumour necrosis factor; TNF; interleukin-6;
KW pituitary adenylate cyclase activator peptide; IL-6; PACAP; VIP;
KW vasoactive intestinal peptide.
XX
OS Homo sapiens.
XX
PN WO9953944-A1.
XX
PD 28-OCT-1999.
XX
PF 16-APR-1999; 99WO-ES000101.
XX
PR 17-APR-1998; 98ES-00000814.
XX
PA (UYMA-) UNIV COMPLUTENSE MADRID.
XX
PI Perez Gomariz R, Leceta Martinez J, Delgado Mora M;
PI Martinez Mora C;
XX
DR WPI; 1999-633903/54.
XX
PT Treatment of endotoxic shock by inhibiting production of pro-inflammatory
PT cytokines.
XX
PS Disclosure; Page 2; 24pp; Spanish.
XX
CC The invention relates to the treatment of endotoxic shock in a mammal by
CC administering, in a vehicle, an agent that inhibits production of tumour
CC necrosis factor (TNF) or interleukin-6 (IL-6). The inhibitory agents are
CC especially vasoactive intestinal peptide (VIP; this sequence), pituitary
CC adenylate cyclase activator peptide 38 (PACAP-38; AAY44197) or PACAP-27
CC (AAY44198)
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||

```
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 25
AAY94560
ID   AAY94560 standard; peptide; 28 AA.
XX
AC   AAY94560;
XX
DT   06-DEC-2000  (first entry)
XX
DE   Vasoactive Intestinal Peptide cleavage product #1.
XX
KW   Human; Kell; endothelins; vasoactive; intestinal peptide; proteolytic;
KW   hypertension; cell differentiation; proliferation; haematopoiesis; ECE;
KW   endothelin converting enzyme; VIP.
XX
OS   Homo sapiens.
XX
PN   US6063592-A.
XX
PD   16-MAY-2000.
XX
PF   13-NOV-1998;   98US-00192048.
XX
PR   13-NOV-1998;   98US-00192048.
XX
PA   (NYBL-) NEW YORK BLOOD CENT INC.
XX
PI   Lee S;
XX
DR   WPI; 2000-375492/32.
XX
PT   Cleavage of big endothelin or vasoactive intestinal peptide, useful for
PT   generating bioactive peptides (e.g. endothelin) from inactive precursor
PT   forms, comprises contacting with a recombinant or isolated Kell protein.
XX
PS   Disclosure; Col 10; 15pp; English.
XX
CC   The present invention relates to the cleavage of big endothelin 1, 2 and
CC   3 or vasoactive intestinal peptide (VIP) with Kell proteins. This
CC   cleavage is useful for generating bioactive endothelins from their
CC   inactive precursor forms. The method is also useful in developing
CC   therapeutic agents and screening assays. The proteolytic function of the
CC   Kell proteins can be used in the management and study of hypertension and
CC   cell differentiation and proliferation, e.g. in haematopoiesis and
CC   developmental process. VIP protein was cleaved by SF9 cell media infected
CC   with baculovirus containing recombinant soluble Kell cDNA's. The present
CC   sequence is cleavage product #1, this peptide consists of residues 1 to
CC   28 of the precursor VIP protein
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 3;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 26
AAB85707
ID   AAB85707 standard; peptide; 28 AA.
XX
AC   AAB85707;
XX
DT   29-OCT-2001  (first entry)
XX
DE   Peptide having digestive tract movement suppressing activity.
XX
KW   Digestive tract; suppressor; antidiarrheal; gastrointestinal; abdominal;
KW   MRI inspection; endoscopy.
XX
OS   Synthetic.
XX
PN   JP2001151799-A.
XX
PD   05-JUN-2001.
XX
PF   22-NOV-1999;   99JP-00331341.
XX
PR   22-NOV-1999;   99JP-00331341.
XX
PA   (ITOH-) ITO HAM KK.
XX
DR   WPI; 2001-505699/56.
XX
PT   New peptides and a digestive tract movement suppressor containing them.
XX
PS   Example; Page 10; 15pp; Japanese.
XX
CC   The invention relates to a peptide consisting of an amino acid sequence
CC   from the N-terminal to at least 23 residues of a 38 residue amino acid
CC   sequence (AAB85706), having digestive tract movement suppressing
CC   activity. The digestive tract movement suppressor can be used for the
CC   pretreatment of digestive tract inspection, gastrointestinal X ray
CC   inspection, abdominal MRI inspection and endoscopy. The present sequence
CC   represents a specific example of a peptide having digestive tract
CC   movement suppressing activity
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 27
AAB85710
ID   AAB85710 standard; peptide; 28 AA.
XX
AC   AAB85710;
XX
DT   29-OCT-2001  (first entry)
XX
DE   Peptide having digestive tract movement suppressing activity.
XX
KW   Digestive tract; suppressor; antidiarrheal; gastrointestinal; abdominal;
KW   MRI inspection; endoscopy.
XX
OS   Synthetic.
XX
PN   JP2001151799-A.
XX
PD   05-JUN-2001.
XX
PF   22-NOV-1999;   99JP-00331341.
XX
PR   22-NOV-1999;   99JP-00331341.
XX
PA   (ITOH-) ITO HAM KK.
XX
DR   WPI; 2001-505699/56.
XX
PT   New peptides and a digestive tract movement suppressor containing them.
XX
PS   Example; Page 11; 15pp; Japanese.
XX
CC   The invention relates to a peptide consisting of an amino acid sequence
CC   from the N-terminal to at least 23 residues of a 38 residue amino acid
```

```
CC   sequence (AAB85706), having digestive tract movement suppressing
CC   activity. The digestive tract movement suppressor can be used for the
CC   pretreatment of digestive tract inspection, gastrointestinal X ray
CC   inspection, abdominal MRI inspection and endoscopy. The present sequence
CC   represents a specific example of a peptide having digestive tract
CC   movement suppressing activity
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 28
AAB91279
ID   AAB91279 standard; peptide; 28 AA.
XX
AC   AAB91279;
XX
DT   22-JUN-2001  (first entry)
XX
DE   Vasoactive intestinal peptide (VIP) and related peptide SEQ IDNO:455.
XX
KW   Protection; endogenous therapeutic peptide; peptidase; conjugation;
KW   blood component; modification; succinimidyl; maleimido group; amino;
KW   hydroxyl; thiol; hormone; growth factor; neurotransmitter.
XX
OS   Homo sapiens.
OS   Synthetic.
XX
PN   WO200069900-A2.
XX
PD   23-NOV-2000.
XX
PF   17-MAY-2000; 2000WO-US013576.
XX
PR   17-MAY-1999;   99US-0134406P.
PR   10-SEP-1999;   99US-0153406P.
PR   15-OCT-1999;   99US-0159783P.
XX
PA   (CONJ-) CONJUCHEM INC.
XX
PI   Bridon DP,  Ezrin AM,  Milner PG,  Holmes DL,  Thibaudeau K;
XX
DR   WPI; 2001-112059/12.
XX
PT   Modifying and attaching therapeutic peptides to albumin prevents
PT   peptidase degradation, useful for increasing length of in vivo activity.
XX
PS   Disclosure; Page 347; 733pp; English.
XX
CC   The present invention describes a modified therapeutic peptide (I)
CC   comprising a therapeutically active amino acid region (III) and a
CC   reactive group (II) (e.g. succinimidyl and maleimido groups) attached to
CC   a less therapeutically active amino acid region (IV), which covalently
CC   bonds with amino/hydroxyl/thiol groups on blood components to form a
CC   peptidase stabilised therapeutic peptide composed of 3-50 amino acids.
CC   (I) are useful for modifying therapeutic peptides e.g. hormones, growth
CC   factors and neurotransmitters, to protect them from peptidase activity in
CC   vivo for the treatment of various disorders. Endogenous therapeutic
CC   peptides are not suitable as drug candidates as they require frequent
CC   administration due to rapid degradation by peptidases in the body.
CC   Modifying and attaching therapeutic peptides to albumin prevents or
CC   reduces the action of peptidases to increase length of activity (half
CC   life) and specificity as bonding to large molecules decreases
CC   intracellular uptake and interference with physiological processes.
CC   AAB90829 to AAB92441 represent peptides which can be used in the
CC   exemplification of the present invention
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 29
AAB91278
ID   AAB91278 standard; peptide; 28 AA.
XX
AC   AAB91278;
XX
DT   22-JUN-2001  (first entry)
XX
DE   Vasoactive intestinal peptide (VIP) and related peptide SEQ IDNO:454.
XX
KW   Protection; endogenous therapeutic peptide; peptidase; conjugation;
KW   blood component; modification; succinimidyl; maleimido group; amino;
KW   hydroxyl; thiol; hormone; growth factor; neurotransmitter.
XX
OS   Homo sapiens.
OS   Synthetic.
XX
PN   WO200069900-A2.
XX
PD   23-NOV-2000.
XX
PF   17-MAY-2000; 2000WO-US013576.
XX
PR   17-MAY-1999;   99US-0134406P.
PR   10-SEP-1999;   99US-0153406P.
PR   15-OCT-1999;   99US-0159783P.
XX
PA   (CONJ-) CONJUCHEM INC.
XX
PI   Bridon DP,  Ezrin AM,  Milner PG,  Holmes DL,  Thibaudeau K;
XX
DR   WPI; 2001-112059/12.
XX
PT   Modifying and attaching therapeutic peptides to albumin prevents
PT   peptidase degradation, useful for increasing length of in vivo activity.
XX
PS   Disclosure; Page 347; 733pp; English.
XX
CC   The present invention describes a modified therapeutic peptide (I)
CC   comprising a therapeutically active amino acid region (III) and a
CC   reactive group (II) (e.g. succinimidyl and maleimido groups) attached to
CC   a less therapeutically active amino acid region (IV), which covalently
CC   bonds with amino/hydroxyl/thiol groups on blood components to form a
CC   peptidase stabilised therapeutic peptide composed of 3-50 amino acids.
CC   (I) are useful for modifying therapeutic peptides e.g. hormones, growth
CC   factors and neurotransmitters, to protect them from peptidase activity in
CC   vivo for the treatment of various disorders. Endogenous therapeutic
CC   peptides are not suitable as drug candidates as they require frequent
CC   administration due to rapid degradation by peptidases in the body.
CC   Modifying and attaching therapeutic peptides to albumin prevents or
CC   reduces the action of peptidases to increase length of activity (half
CC   life) and specificity as bonding to large molecules decreases
CC   intracellular uptake and interference with physiological processes.
CC   AAB90829 to AAB92441 represent peptides which can be used in the
CC   exemplification of the present invention
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
```

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
```

RESULT 30
AAE12028
ID  AAE12028 standard; peptide; 28 AA.
XX
AC  AAE12028;
XX
DT  18-DEC-2001  (first entry)
XX
DE  Porcine vasoactive intestinal peptide (VIP).
XX
KW  Porcine; vasoactive intestinal peptide; VIP; antineoplastic; cytotoxic;
KW  VIP antagonist; pharmacological; cancer.
XX
OS  Sus scrofa.
XX
PN  WO200160862-A1.
XX
PD  23-AUG-2001.
XX
PF  31-JUL-2000; 2000WO-US020871.
XX
PR  18-FEB-2000; 2000IN-DE000136.
XX
PA  (DABU-) DABUR RES FOUND.
PA  (CORD/) CORD J I.
XX
PI  Burman AC,  Prasad S,  Mukherjee R,  Singh AT,  Mathur A,  Gupta N;
XX
DR  WPI; 2001-616128/71.
XX
PT  New vasoactive intestinal peptide analogs containing alpha, alpha-
PT  dialkylated amino acids, useful in the treatment of cancer, and their
PT  preparation.
XX
PS  Disclosure; Page 1; 34pp; English.
XX
CC  The invention relates to vasoactive intestinal peptide (VIP) analogs
CC  containing alpha, alpha-dialkylated amino acids in a site specific
CC  manner. The invention also relates to the synthesis of active VIP peptide
CC  derivatives, which bind selectively to VIP receptors on target cells. The
CC  invention encompasses methods for the generation of these peptides,
CC  compositions containing the peptides and the pharmacological applications
CC  of these peptides especially in the treatment and prevention of cancer.
CC  The present sequence is vasoactive intestinal peptide (VIP) related to
CC  the invention
XX
SQ  Sequence 28 AA;

```
  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
```

RESULT 31
AAB37111
ID  AAB37111 standard; peptide; 28 AA.
XX
AC  AAB37111;
XX
DT  09-APR-2001  (first entry)
XX
DE  Human vasoactive intestinal peptide.
XX
KW  Anti-inflammatory; tumour necrosis factor production inhibitor; VIP;
KW  antisepsis; anti-arthritic; interleukin 6 production inhibitor; PACAP;
KW  vasoactive intestinal peptide; endotoxic shock; inflammation; human;
KW  pituitary adenylate cyclase activating peptide; autoimmune disease;
KW  rheumatoid arthritis; multiple sclerosis; Crohn's disease;
KW  graft rejection.
XX
OS  Homo sapiens.
XX
FH  Key             Location/Qualifiers
FT  Modified-site   28
FT                  /note= "amidated C-terminus"
XX
PN  WO200074708-A1.
XX
PD  14-DEC-2000.
XX
PF  02-JUN-2000; 2000WO-ES000197.
XX
PR  04-JUN-1999;  99ES-00001235.
XX
PA  (UYMA-) UNIV COMPLUTENSE MADRID.
XX
PI  Perez Gomariz R,  Leceta Martinez J,  Delgado Mora M;
PI  Martinez Mora C;
XX
DR  WPI; 2001-071028/08.
XX
PT  Treating endotoxic shock, inflammation and autoimmune diseases, by
PT  administering vasoactive peptides or pituitary adenylate cyclase
PT  activating peptides.
XX
PS  Claim 1; Page 3; 33pp; Spanish.
XX
CC  The invention relates to the use of vasoactive intestinal peptide (VIP)
CC  or pituitary adenylate cyclase activating peptide (PACAP) (or their
CC  fragments and analogues) for preparing a composition for treating
CC  endotoxic shock in mammals or inflammatory and autoimmune diseases
CC  associated with activation of Th1 cells. This sequence corresponds to the
CC  human VIP sequence. The peptide acts by inhibiting the production of
CC  tumour necrosis factor (TNF) and interleukin-6 (IL-6) and for treating
CC  inflammatory/autoimmune diseases, they inhibit Th1 cells, stimulate Th2
CC  cells and increase production of IL-4 (an inhibitor of proinflammatory
CC  cytokines). VIP and PACAP also modulate the capacity of antigen-
CC  presenting cells (APC) to induce activation and differentiation of
CC  lymphocytes. The VIP and PACAP peptides are used to treat endotoxic shock
CC  and inflammatory and autoimmune diseases, e.g. rheumatoid arthritis,
CC  multiple sclerosis, Crohn's disease and graft rejection
XX
SQ  Sequence 28 AA;

```
  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
```

RESULT 32
AAG70459
ID  AAG70459 standard; peptide; 28 AA.
XX
AC  AAG70459;
XX
DT  13-JUL-2001  (first entry)
XX
DE  Vasoactive intestinal peptide.
XX
KW  Vasoactive intestinal peptide; VIP; antidiabetic; antiasthmatic;
KW  hypotensive; cardiant; antiulcer; respiratory disease; diabetes;
KW  glucose intolerance; asthma; male fertility; cardiovascular disease;

KW ulcer; gene therapy; pituitary adenylate cyclase activating peptide;
KW PACAP; PACAP receptor 3; R3; agonist.
XX
OS Unidentified.
XX
PN WO200123420-A2.
XX
PD 05-APR-2001.
XX
PF 27-SEP-2000; 2000WO-US026638.
XX
PR 28-SEP-1999; 99US-00407832.
PR 15-JUN-2000; 2000US-00595280.
XX
PA (FARB ) BAYER CORP.
XX
PI Pan C, Tsutsumi M, Shanafelt AB;
XX
DR WPI; 2001-367200/38.
DR N-PSDB; AAH28691.
XX
PT Novel pituitary adenylate cyclase activating peptide receptor 3 agonist
PT useful for treating type 2 diabetes, asthma, hypertension, ulcers and
PT cardiovascular diseases.
XX
PS Example 6; Page 22; 62pp; English.
XX
CC The present sequence is provided in a specification relating to pituitary
CC adenylate cyclase activating peptide (PACAP) receptor 3 (R3) agonist
CC polypeptides. The polypeptides stimulate insulin release from pancreatic
CC beta cells. They are useful for treating metabolic disorders such as type
CC 2 diabetes and the pre-diabetic state of impaired glucose tolerance. They
CC are useful for treating respiratory diseases and for stimulating insulin
CC release in a glucose-dependent manner. The R3 agonists are useful for
CC treating and/or preventing diseases and conditions such as diabetes,
CC asthma, hypertension, male reproduction problems including human sperm
CC motility, cardiovascular diseases and ulcers. They are useful in gene
CC therapy
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 4; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 33
AAB50845
ID AAB50845 standard; peptide; 28 AA.
XX
AC AAB50845;
XX
DT 14-MAR-2001 (first entry)
XX
DE Human protein calmodulin-binding domain.
XX
KW Fluorescent protein indicator; green fluorescent protein; GFP;
KW linker moiety; sensor; calmodulin-binding domain.
XX
OS Homo sapiens.
XX
PN WO200071565-A2.
XX
PD 30-NOV-2000.
XX
PF 17-MAY-2000; 2000WO-US013684.
XX
PR 21-MAY-1999; 99US-00316919.
PR 21-MAY-1999; 99US-00316920.
XX
PA (REGC ) UNIV CALIFORNIA.
XX
PI Tsien RY, Baird GA;
XX
DR WPI; 2001-032017/04.
XX
PT Novel fluorescent proteins comprising a sensor protein inserted into
PT them, useful for measuring the response of a sensor biological, chemical,
PT electrical or physiological parameter in vivo or in vitro.
XX
PS Disclosure; Page 33; 94pp; English.
XX
CC The present sequence is a calmodulin-binding domain peptide used in the
CC construction of a fluorescent protein indicator. The indicator comprises
CC a sensor polypeptide that is responsive to a chemical, biological,
CC electrical or physiological parameter, and a fluorescence protein
CC functional group. The sensor polypeptide is operatively inserted into the
CC fluorescent moiety. The fluorescent indicator is useful for detecting the
CC presence of a response inducing member in a sample. The method involves
CC contacting the sample with the indicator and detecting a change in
CC fluorescence, in which a change is indicative of the effect of the
CC parameter on the sensor polypeptide. The novel fluorescent proteins are
CC advantageous due to their reduced size as compared to the FRET
CC (fluorescence resonance energy transfer)-based sensors
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 4; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 34
AAU09653
ID AAU09653 standard; peptide; 28 AA.
XX
AC AAU09653;
XX
DT 27-FEB-2002 (first entry)
XX
DE Porcine intestinal peptide (VIP).
XX
KW Vasoactive intestinal peptide; VIP receptor; neuropeptide; radiotherapy;
KW tumour; metastasis; cancer; cytostatic; porcine.
XX
OS Sus barbatus.
XX
PN WO200160863-A1.
XX
PD 23-AUG-2001.
XX
PF 31-JUL-2000; 2000WO-US020874.
XX
PR 18-FEB-2000; 2000IN-DE000137.
XX
PA (DABU-) DABUR RES FOUND.
PA (CORD/) CORD J I.
XX
PI Burman AC, Prasad S, Mukherjee R, Dutt S, Sharma R, Ahuja R;
PI Mishra AK, Matthew LK;
XX
DR WPI; 2001-656699/75.
XX
PT New radiolabeled vasoactive intestinal peptide analogs, useful for
PT radioimaging, radiodiagnostics and radiotherapy, particularly in the
PT treatment of cancer.
XX
PS Example 15; Page 1; 43pp; English.

```
XX
CC   The present invention relates to radiolabelled analogues of vasoactive
CC   intestinal peptide (VIP). VIP is a neuropeptide which shares homology
CC   with secretin, PHI and glucagon. The invention provides radiolabelled VIP
CC   analogues that selectively bind to the VIP receptor on target cells. The
CC   VIP analogues of the invention exhibit pharmacological activity and are
CC   useful as an imaging agent for visualising VIP-receptor tumours and
CC   metastases, and can be used as a radio-therapeutic agent for the
CC   treatment of cancer by specifically targeting tumour sites in mammals.
CC   The present sequence for porcine VIP is used in the methods of the
CC   present invention
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 35
AAB45614
ID   AAB45614 standard; peptide; 28 AA.
XX
AC   AAB45614;
XX
DT   09-MAR-2001  (first entry)
XX
DE   Native vasoactive intestinal peptide.
XX
KW   Vasoactive intestinal peptide; somatostatin; neurotensin; diagnosis;
KW   polymethine dye; fluorescence; detection; tumor; adenoma; esophagus;
KW   gastrointestinal tract; bronchial tract; bladder; cervix; breast;
KW   optical mammography; optical tomography.
XX
OS   Unidentified.
XX
PN   DE19917713-A1.
XX
PD   19-OCT-2000.
XX
PF   09-APR-1999;   99DE-01017713.
XX
PR   09-APR-1999;   99DE-01017713.
XX
PA   (DIAG-) INST DIAGNOSTIKFORSCHUNG GMBH.
XX
PI   Licha K,  Becker A,  Semmler W,  Wiedenmann B,  Hessenius C;
PI   Volkmer-Engert R,  Schneider-Mergener J;
XX
DR   WPI; 2001-000423/01.
XX
PT   New conjugates of vasoactive intestinal peptide, somatostatin or
PT   neurotensin peptides and polymethine dyes are used for e.g. in-vivo
PT   fluorescence diagnosis of tumors and other diseased tissues.
XX
PS   Claim 7; Page 15; 32pp; German.
XX
CC   This invention describes novel conjugates (I) of vasoactive intestinal
CC   peptide (VIP), somatostatin or neurotensin peptides and polymethine dyes.
CC   The products of the invention can also be used for a diagnostic method
CC   comprising administering (I) to a patient, either intravenously or to the
CC   bronchi by inhalation or to the gastrointestinal tract, esophagus or
CC   bladder by spraying and then washing out excess (I), and then performing
CC   an endoscopic investigation by local excitation of fluorescence at an
CC   excitation wavelength of 350-1200 nm and site-specific detection of the
CC   fluorescence emitted by the dye. (I) are useful for in-vivo diagnosis of
CC   tumors, other diseased tissues or adenomas by means of optical detection
CC   procedures, in-vivo fluorescence diagnosis of tumors, tumor cells and/or
CC   inflammatory tissues by means of endoscopic procedures in the
CC   gastrointestinal tract, esophagus, bronchial tract, bladder or cervix or
CC   for in-vivo fluorescence and/or absorption diagnosis of breast tumors by
CC   means of optical mammography (transillumination or optical tomography of
CC   the breast). The peptide component provides receptor-specific binding to
CC   target tissues and the polymethine dye provides a fluorescence signal
CC   that is detectable with high sensitivity
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 36
AAE19604
ID   AAE19604 standard; peptide; 28 AA.
XX
AC   AAE19604;
XX
DT   31-MAY-2002  (first entry)
XX
DE   Human stearoyl-vasoactive intestinal peptide (VIP).
XX
KW   Human; pharmaceutical composition; vasoactive intestinal peptide; VIP;
KW   therapy; hyperproliferative skin disorder; papilloma virus infection;
KW   psoriasis; eczema; keratoderma; keratosis; ichthyosis; keloid; dry skin;
KW   wart; corn; callus; dandruff; skin cancer; cell apoptosis; keratolytic;
KW   dermatological; cytostatic; virucide; vulnerary.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   1
FT                   /note= "Stearyl His"
FT   Modified-site   28
FT                   /note= "C-terminal amide"
XX
PN   WO200193889-A2.
XX
PD   13-DEC-2001.
XX
PF   07-JUN-2001; 2001WO-IL000523.
XX
PR   07-JUN-2000; 2000IL-00136631.
XX
PA   (YEDA ) YEDA RES & DEV CO LTD.
PA   (UYRA-) UNIV RAMOT APPLIED RES & IND DEV LTD.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Gozes I,  Granoth R,  Fridkin M,  Brenneman ED;
XX
DR   WPI; 2002-226779/28.
XX
PT   Pharmaceutical composition useful for the treatment of hyperproliferative
PT   skin disorder comprises vasoactive intestinal peptide-related peptides.
XX
PS   Claim 15; Page 78; 83pp; English.
XX
CC   The present invention relates to a pharmaceutical composition comprising
CC   vasoactive intestinal peptide (VIP), VIP-derived peptides and their
CC   conjugates and a carrier. The invention is used for the treatment of a
CC   hyperproliferative skin disorder of a patient e.g. hyperproliferation
CC   caused by papilloma virus infection, psoriasis, dermatoses, eczemas,
CC   keratodermas, porokeratoses, keratosis, hyperkeratosis, ichthyosis,
CC   keloid, dry skin, warts, corns, calluses, dandruff and skin cancer. The
CC   peptides avoid the problem of potential toxic side effects and achieving
CC   only temporary effect and induce cell apoptosis. The peptides inhibits
CC   hyperproliferation of keratinocytes, also act through different cellular
```

```
CC   mechanisms. The present sequence is human stearoyl-VIP
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 5;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 37
AAE19627
ID   AAE19627 standard; peptide; 28 AA.
XX
AC   AAE19627;
XX
DT   31-MAY-2002  (first entry)
XX
DE   Human vasoactive intestinal peptide (VIP) conjugate, St-Thr7-VIP.
XX
KW   Human; pharmaceutical composition; vasoactive intestinal peptide; VIP;
KW   therapy; hyperproliferative skin disorder; papilloma virus infection;
KW   psoriasis; eczema; keratoderma; keratosis; ichthyosis; keloid; dry skin;
KW   wart; corn; callus; dandruff; skin cancer; cell apoptosis; keratolytic;
KW   dermatological; cytostatic; virucide; vulnerary.
XX
OS   Homo sapiens.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   1
FT                   /note= "Stearoyl histidine"
FT   Modified-site   28
FT                   /note= "C-terminal amide"
XX
PN   WO200193889-A2.
XX
PD   13-DEC-2001.
XX
PF   07-JUN-2001; 2001WO-IL000523.
XX
PR   07-JUN-2000; 2000IL-00136631.
XX
PA   (YEDA ) YEDA RES & DEV CO LTD.
PA   (UYRA-) UNIV RAMOT APPLIED RES & IND DEV LTD.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Gozes I,  Granoth R,  Fridkin M,  Brenneman ED;
XX
DR   WPI; 2002-226779/28.
XX
PT   Pharmaceutical composition useful for the treatment of hyperproliferative
PT   skin disorder comprises vasoactive intestinal peptide-related peptides.
XX
PS   Claim 15; Page; 83pp; English.
XX
CC   The present invention relates to a pharmaceutical composition comprising
CC   vasoactive intestinal peptide (VIP), VIP-derived peptides and their
CC   conjugates and a carrier. The invention is used for the treatment of a
CC   hyperproliferative skin disorder of a patient e.g. hyperproliferation
CC   caused by papilloma virus infection, psoriasis, dermatoses, eczemas,
CC   keratodermas, porokeratoses, keratosis, hyperkeratosis, ichthyosis,
CC   keloid, dry skin, warts, corns, calluses, dandruff and skin cancer. The
CC   peptides avoid the problem of potential toxic side effects and achieving
CC   only temporary effect and induce cell apoptosis. The peptides inhibits
CC   hyperproliferation of keratinocytes, also act through different cellular
CC   mechanisms. The present sequence is human VIP conjugate
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 5;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28


RESULT 38
AAE19603
ID   AAE19603 standard; peptide; 28 AA.
XX
AC   AAE19603;
XX
DT   31-MAY-2002  (first entry)
XX
DE   Human vasoactive intestinal peptide (VIP).
XX
KW   Human; pharmaceutical composition; vasoactive intestinal peptide; VIP;
KW   therapy; hyperproliferative skin disorder; papilloma virus infection;
KW   psoriasis; eczema; keratoderma; keratosis; ichthyosis; keloid; dry skin;
KW   wart; corn; callus; dandruff; skin cancer; cell apoptosis; keratolytic;
KW   dermatological; cytostatic; virucide; vulnerary.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   28
FT                   /note= "C-terminal amide"
XX
PN   WO200193889-A2.
XX
PD   13-DEC-2001.
XX
PF   07-JUN-2001; 2001WO-IL000523.
XX
PR   07-JUN-2000; 2000IL-00136631.
XX
PA   (YEDA ) YEDA RES & DEV CO LTD.
PA   (UYRA-) UNIV RAMOT APPLIED RES & IND DEV LTD.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Gozes I,  Granoth R,  Fridkin M,  Brenneman ED;
XX
DR   WPI; 2002-226779/28.
XX
PT   Pharmaceutical composition useful for the treatment of hyperproliferative
PT   skin disorder comprises vasoactive intestinal peptide-related peptides.
XX
PS   Claim 2; Page 62; 83pp; English.
XX
CC   The present invention relates to a pharmaceutical composition comprising
CC   vasoactive intestinal peptide (VIP), VIP-derived peptides and their
CC   conjugates and a carrier. The invention is used for the treatment of a
CC   hyperproliferative skin disorder of a patient e.g. hyperproliferation
CC   caused by papilloma virus infection, psoriasis, dermatoses, eczemas,
CC   keratodermas, porokeratoses, keratosis, hyperkeratosis, ichthyosis,
CC   keloid, dry skin, warts, corns, calluses, dandruff and skin cancer. The
CC   peptides avoid the problem of potential toxic side effects and achieving
CC   only temporary effect and induce cell apoptosis. The peptides inhibits
CC   hyperproliferation of keratinocytes, also act through different cellular
CC   mechanisms. The present sequence is human VIP
XX
SQ   Sequence 28 AA;

  Query Match             100.0%;  Score 143;  DB 5;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-11;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
```

RESULT 39
ABB06677
ID ABB06677 standard; peptide; 28 AA.
XX
AC ABB06677;
XX
DT 10-JUN-2002 (first entry)
XX
DE Mammalian VIP family peptide sequence SEQ ID NO:16.
XX
KW Amphibian; bombesin; gastrin-releasing peptide; GRP; GRF; litoein;
KW growth hormone releasing factor; cytostatic; antiarteriosclerotic;
KW gastrointestinal; antidiabetic; ophthalmological; atherosclerosis;
KW autocrine mitotic factor; paracrine mitotic factor; cancer; gastric;
KW malignant proliferation; benign proliferation; pancreatic secretion;
KW motility; amylase secretion suppression; appetite; muscular dystrophy;
KW diabetes.
XX
OS Homo sapiens.
OS Sus scrofa.
OS Bos taurus.
XX
FH Key Location/Qualifiers
FT Modified-site 28
FT /note= "amidated"
XX
PN US6307017-B1.
XX
PD 23-OCT-2001.
XX
PF 02-MAR-1999; 99US-00260846.
XX
PR 24-SEP-1987; 87US-00100571.
PR 25-MAR-1988; 88US-00173311.
PR 08-JUN-1988; 88US-00204171.
PR 16-JUN-1988; 88US-00207759.
PR 23-SEP-1988; 88US-00248771.
PR 14-OCT-1988; 88US-00257998.
PR 09-DEC-1988; 88US-00282328.
PR 02-MAR-1989; 89US-00317941.
PR 07-JUL-1989; 89US-00376555.
PR 21-AUG-1989; 89US-00397169.
PR 30-MAR-1990; 90US-00502438.
PR 18-OCT-1991; 91US-00779039.
PR 10-NOV-1994; 94US-00337127.
XX
PA (BIOM-) BIOMEASURE INC.
PA (TULA ) TULANE EDUCATIONAL FUND.
XX
PI Coy DH, Moreau J, Kim SH;
XX
DR WPI; 2002-162970/21.
XX
PT New antagonistic analogs of litoein and similar peptides, are useful for
PT treating malignant or benign proliferation or gastrointestinal disorders.
XX
PS Disclosure; Fig 3A; 29pp; English.
XX
CC The present invention describes therapeutic peptides (A) or their salts
CC of 7-10 amino acids (aa) that are analogues of the natural peptides,
CC having C-terminal Met, litoein or the 10 aa C-terminal region of either
CC mammalian gastrin-releasing peptide (GRP) or amphibian bombesin. (A) have
CC cytostatic, antiarteriosclerotic, gastrointestinal, antidiabetic and
CC ophthalmological activities and can be used as natural peptide
CC antagonists. The peptide pyroGlu-Gln-Trp-Ala-Val-Gly-His-Leu-statine-NH2
CC has IC50 for inhibition of binding of GRP to the bombesin receptor on 3T3
CC cells of 150 nM and IC50 for inhibition of bombesin-stimulated
CC incorporation of titrated thymidine into small cell lung cancer cells
CC (NCI-H69) of 165 nM. (A) can be used to treat conditions where the
CC substance related to (A) acts as autocrine or paracrine mitotic factor,
CC e.g. malignant or benign proliferation, e.g. cancer or atherosclerosis;
CC or disorders of gastric or pancreatic secretion or motility, e.g. to
CC suppress secretion of amylase and to control appetite (particularly
CC restoration of appetite in patients with cachexia). Antagonists of GRP
CC also suppresses the release of growth hormone so can be used to slow down
CC progression of muscular dystrophy and to treat diabetes (or associated
CC retinopathy). The present sequence represents a peptide which is used in
CC the exemplification of the present invention
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 5; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 40
AAU85989
ID AAU85989 standard; peptide; 28 AA.
XX
AC AAU85989;
XX
DT 21-MAY-2002 (first entry)
XX
DE Modified vasoactive intestinal peptide (VIP).
XX
KW Increased biological potency; prolonged activity; increased half-life;
KW glucose intolerance; insulin resistance; type II diabetes; bone disease;
KW cancer; inflammatory disorder; obesity; developmental disorder;
KW hyperproliferative skin disease; hormone-dependent disease; homeostasis;
KW intestinal disease; interleukin-8 production; smooth muscle contraction;
KW feeding; blood pressure; pancreatic secretion; mutant; mutein; VIP;
KW vasoactive intestinal peptide.
XX
OS Unidentified.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 1
FT /note= "H-His"
FT Modified-site 28
FT /note= "C-terminal amide"
XX
PN WO200210195-A2.
XX
PD 07-FEB-2002.
XX
PF 02-AUG-2001; 2001WO-CA001119.
XX
PR 02-AUG-2000; 2000US-0222619P.
XX
PA (THER-) THERATECHNOLOGIES INC.
XX
PI Gravel D, Habi A, Abribat T;
XX
DR WPI; 2002-206179/26.
XX
PT Novel modified biological peptide with increased biological potency,
PT prolonged activity, increased half-life, for treating glucose intolerance
PT associated or not with insulin resistance pathologies, type II diabetes.
XX
PS Claim 5; Page 62; 77pp; English.
XX
CC The present invention relates to modified biological peptides with
CC increased biological potency, prolonged activity and/or increased half-
CC life. The peptides of the invention are useful in the treatment of
CC glucose intolerance which may be associated with insulin resistance
CC pathologies, and in the treatment of type II diabetes. They are also
CC useful for treating bone diseases, cancer, diseases related to
CC inflammatory responses, obesity, autism, pervasive developmental

CC disorders, hyperproliferative skin diseases, hormone-dependent diseases,
CC They can be used for regulating blood glucose, enhancing mucosal
CC regeneration in patients with intestinal diseases, inhibition of
CC interleukin-8 production, stimulation of acid release, homeostasis,
CC regulation of exocrine and endocrine secretions, smooth muscle
CC contraction, feeding, blood pressure, body temperature and cell growth,
CC regulation of food intake and energy balance, and stimulation of
CC pancreatic secretion or cell growth. AAU85971-AAU86019 represent the
CC modified biological peptides of the invention
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 143; DB 5; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.8e-11;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

Search completed: February 26, 2004, 10:22:07
Job time : 60 secs

GenCore version 5.1.6


OM protein - protein search, using sw model

Run on: February 26, 2004, 10:20:56 ; Search time 22 Seconds
(without alignments)
122.426 Million cell updates/sec

Title: US-09-929-818-1
Perfect score: 143
Sequence: 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283366 seqs, 96191526 residues

Total number of hits satisfying chosen parameters: 283366

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_78:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 143 | 100.0 | 28 | 2 | B60071 | vasoactive intesti |
| 2 | 143 | 100.0 | 28 | 2 | A60304 | vasoactive intesti |
| 3 | 143 | 100.0 | 55 | 1 | VRRB | vasoactive intesti |
| 4 | 143 | 100.0 | 55 | 1 | VRBO | vasoactive intesti |
| 5 | 143 | 100.0 | 55 | 1 | VRSH | vasoactive intesti |
| 6 | 143 | 100.0 | 58 | 1 | VRPG | vasoactive intesti |
| 7 | 143 | 100.0 | 145 | 2 | A60038 | vasoactive intesti |
| 8 | 143 | 100.0 | 170 | 1 | VRHU | vasoactive intesti |
| 9 | 143 | 100.0 | 170 | 1 | VRRT | vasoactive intesti |
| 10 | 143 | 100.0 | 170 | 2 | A60037 | vasoactive intesti |
| 11 | 130 | 90.9 | 55 | 1 | VRGP | vasoactive intesti |
| 12 | 128 | 89.5 | 165 | 1 | VRCH | vasoactive intesti |
| 13 | 127 | 88.8 | 28 | 2 | A60303 | vasoactive intesti |
| 14 | 120 | 83.9 | 28 | 2 | A38232 | vasoactive intesti |
| 15 | 117 | 81.8 | 25 | 2 | JQ0361 | vasoactive intesti |
| 16 | 106 | 74.1 | 27 | 2 | A61071 | pituitary adenylat |
| 17 | 106 | 74.1 | 38 | 2 | A49165 | pituitary adenylat |
| 18 | 106 | 74.1 | 173 | 2 | S34767 | neuropeptides prec |
| 19 | 106 | 74.1 | 175 | 2 | A37786 | pituitary adenylat |
| 20 | 106 | 74.1 | 176 | 2 | A34044 | pituitary adenylat |
| 21 | 106 | 74.1 | 176 | 2 | I84638 | pituitary adenylat |
| 22 | 106 | 74.1 | 195 | 2 | I50456 | pituitary adenylat |
| 23 | 100 | 69.9 | 38 | 2 | A61070 | pituitary adenylat |
| 24 | 82 | 57.3 | 35 | 1 | HWGHD | exendin-2 - Gila m |
| 25 | 79 | 55.2 | 38 | 1 | HWGHS | exendin-1 - Mexica |
| 26 | 71 | 49.7 | 104 | 2 | A32731 | somatoliberin prec |
| 27 | 70 | 49.0 | 103 | 2 | A41410 | somatoliberin prec |
| 28 | 64 | 44.8 | 44 | 1 | RHBOS | somatoliberin - bo |
| 29 | 63 | 44.1 | 27 | 1 | SECH | secretin - chicken |
| 30 | 59 | 41.3 | 44 | 1 | RHPG | somatoliberin - pi |
| 31 | 59 | 41.3 | 108 | 1 | RHHUS | somatoliberin prec |
| 32 | 58 | 40.6 | 443 | 2 | C70392 | gamma-glutamyl pho |
| 33 | 56 | 39.2 | 206 | 2 | I51301 | proglucagon - chic |
| 34 | 53 | 37.1 | 532 | 2 | B82354 | deoxycytidylate de |
| 35 | 52 | 36.4 | 27 | 2 | A27267 | secretin - dog |
| 36 | 52 | 36.4 | 276 | 2 | AD1860 | two-component resp |
| 37 | 52 | 36.4 | 418 | 2 | A97300 | gamma-glutamyl pho |
| 38 | 50 | 35.0 | 27 | 1 | S07443 | secretin - human |
| 39 | 50 | 35.0 | 27 | 1 | SEBO | secretin - bovine |
| 40 | 50 | 35.0 | 27 | 1 | SESH | secretin - sheep |
| 41 | 50 | 35.0 | 131 | 1 | SEPG | secretin precursor |
| 42 | 50 | 35.0 | 168 | 2 | F90095 | hypothetical prote |
| 43 | 49.5 | 34.6 | 266 | 2 | E71612 | ribosomal protein |
| 44 | 49.5 | 34.6 | 353 | 2 | C69863 | translation initia |
| 45 | 49 | 34.3 | 31 | 2 | S44472 | glucagon G2 - Nort |

ALIGNMENTS

RESULT 1
B60071
vasoactive intestinal peptide - rhesus macaque
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 28-Apr-1993 #sequence_revision 28-Apr-1993 #text_change 20-Mar-1998
C;Accession: B60071
R;Yu, J.; Xin, Y.; Eng, J.; Yalow, R.S.
Regul. Pept. 32, 39-45, 1991
A;Title: Rhesus monkey gastroenteropancreatic hormones: relationship to human sequences.
A;Reference number: A60071; MUID:91164506; PMID:2003150
A;Accession: B60071
A;Status: protein sequence not shown
A;Molecule type: protein
A;Residues: 1-28 <YUA>
A;Note: the sequence is identical with the human sequence
C;Superfamily: glucagon
C;Keywords: duplication; hormone; intestine; neuropeptide; vasodilator

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.8e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 2
A60304
vasoactive intestinal peptide - dog
N;Alternate names: VIP
C;Species: Canis lupus familiaris (dog)
C;Date: 15-Jan-1993 #sequence_revision 15-Jan-1993 #text_change 20-Mar-1998
C;Accession: A60304
R;Eng, J.; Pan, Y.C.E.; Raufman, J.P.; Yalow, R.S.
Regul. Pept. Suppl. 3, S14, 1985
A;Title: Purification and sequencing of dog and guinea pig VIP's.
A;Reference number: A60304
A;Accession: A60304
A;Molecule type: protein
A;Residues: 1-28 <ENG>
C;Superfamily: glucagon
C;Keywords: duplication; hormone; intestine; neuropeptide; vasodilator

Query Match 100.0%; Score 143; DB 2; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.8e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

RESULT 3
VRRB
vasoactive intestinal peptide precursor - rabbit (fragments)
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Oryctolagus cuniculus (domestic rabbit)
C;Date: 03-Feb-1993 #sequence_revision 19-Apr-1996 #text_change 20-Mar-1998
C;Accession: B60415; A60415
R;Gossen, D.; Buscail, L.; Cauvin, A.; Gourlet, P.; De Neef, P.; Rathe, J.; Robberecht,
Peptides 11, 123-128, 1990
A;Title: Amino acid sequence of VIP, PHI and secretin from the rabbit small intestine.
A;Reference number: A60415; MUID:90259845; PMID:2342988
A;Accession: B60415
A;Molecule type: protein
A;Residues: 1-27 <GOS>
A;Accession: A60415
A;Molecule type: protein
A;Residues: 28-55 <GO2>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasodi
F;1-27/Product: peptide histidine-isoleucine #status experimental <PHI>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match 100.0%; Score 143; DB 1; Length 55;
Best Local Similarity 100.0%; Pred. No. 5.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db         28 HSDAVFTDNYTRLRKQMAVKKYLNSILN 55
```

RESULT 4
VRBO
vasoactive intestinal peptide precursor - bovine (fragments)
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Bos primigenius taurus (cattle)
C;Date: 26-Apr-1996 #sequence_revision 03-May-1996 #text_change 07-May-1999
C;Accession: A61643; A61644; S09689
R;Carlquist, M.; Kaiser, R.; Tatemoto, K.; Joernvall, H.; Mutt, V.
Eur. J. Biochem. 144, 243-247, 1984
A;Title: A novel form of the polypeptide PHI isolated in high yield from bovine upper in
A;Reference number: A61643; MUID:85027215; PMID:6548446
A;Accession: A61643
A;Molecule type: protein
A;Residues: 1-27 <CAR>
R;Carlquist, M.; Mutt, V.; Joernvall, H.
FEBS Lett. 108, 457-460, 1979
A;Title: Isolation and characterization of bovine vasoactive intestinal peptide (VIP).
A;Reference number: A61644; MUID:80092152; PMID:520589
A;Accession: A61644
A;Molecule type: protein
A;Residues: 28-55 <CA2>
R;Buscail, L.; Cauvin, A.; Gourlet, P.; Gossen, D.; de Neef, P.; Rathe, J.; Robberecht,
Biochim. Biophys. Acta 1038, 355-359, 1990
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: S09688; MUID:90254163; PMID:2340294
A;Contents: annotation; comparison of mammalian PHI sequences
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasodi
F;1-27/Product: peptide histidine-isoleucine #status experimental <P27>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match 100.0%; Score 143; DB 1; Length 55;
Best Local Similarity 100.0%; Pred. No. 5.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db         28 HSDAVFTDNYTRLRKQMAVKKYLNSILN 55
```

RESULT 5
VRSH
vasoactive intestinal peptide precursor - sheep (fragments)
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C;Date: 31-Mar-1993 #sequence_revision 19-Apr-1996 #text_change 20-Mar-1998
C;Accession: B60072; A60072; C61063; A43974
R;Bounjoua, Y.; Vandermeers, A.; Robberecht, P.; Vandermeers-Piret, M.C.; Christophe, J.
Regul. Pept. 32, 169-179, 1991
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: A60072; MUID:91239834; PMID:2034821
A;Accession: B60072
A;Molecule type: protein
A;Residues: 1-27 <BOU>
A;Accession: A60072
A;Molecule type: protein
A;Residues: 28-55 <BO2>
R;Miyata, A.; Jiang, L.; Stibbs, H.H.; Arimura, A.
Regul. Pept. 38, 145-154, 1992
A;Title: Chemical characterization of vasoactive intestinal polypeptide-like immunoreact
A;Reference number: A61063; MUID:92245116; PMID:1574609
A;Accession: C61063
A;Molecule type: protein
A;Residues: 28-55 <MIY>
A;Experimental source: hypothalamus, intestine
R;Gafvelin, G.
Peptides 11, 703-706, 1990
A;Title: Isolation and primary structure of VIP from sheep brain.
A;Reference number: A43974; MUID:91045331; PMID:2235680
A;Accession: A43974
A;Molecule type: protein
A;Residues: 28-55 <GAF>
A;Experimental source: brain
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; brain; duplication; hormone; intestine; neuropeptide;
F;1-27/Product: peptide histidine-isoleucine #status experimental <PHI>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match 100.0%; Score 143; DB 1; Length 55;
Best Local Similarity 100.0%; Pred. No. 5.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db         28 HSDAVFTDNYTRLRKQMAVKKYLNSILN 55
```

RESULT 6
VRPG
vasoactive intestinal peptide precursor - pig (fragments)
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 24-Apr-1984 #sequence_revision 05-Jan-1996 #text_change 21-Nov-1997
C;Accession: A01549; A60300; A01550; JT0417; A56754; S09690
R;Tatemoto, K.; Mutt, V.
Proc. Natl. Acad. Sci. U.S.A. 78, 6603-6607, 1981
A;Title: Isolation and characterization of the intestinal peptide porcine PHI (PHI-27),
A;Reference number: A01549; MUID:82082498; PMID:6947244
A;Accession: A01549
A;Molecule type: protein
A;Residues: 1-27 <TAT>
R;Tatemoto, K.
Regul. Pept. 6, 330, 1983
A;Title: PHI - a new brain-gut peptide.
A;Reference number: A60300
A;Accession: A60300
A;Molecule type: protein
A;Residues: 1-27 <TA2>

R;Mutt, V.; Said, S.I.
Eur. J. Biochem. 42, 581-589, 1974
A;Title: Structure of the porcine vasoactive intestinal octacosapeptide. The amino-acid
A;Reference number: A01550; MUID:74167323; PMID:4829446
A;Accession: A01550
A;Molecule type: protein
A;Residues: 28-55 <MUT>
R;Gafvelin, G.; Andersson, M.; Dimaline, R.; Joernvall, H.; Mutt, V.
Peptides 9, 469-474, 1988
A;Title: Isolation and characterization of a variant form of vasoactive intestinal polyp
A;Reference number: JT0417; MUID:88335763; PMID:2843830
A;Accession: JT0417
A;Molecule type: protein
A;Residues: 28-58 <GAF>
A;Note: this extended form is active in a VIP assay but is probably an incompletely proc
R;Bodanszky, M.; Klausner, Y.S.; Lin, C.Y.; Mutt, V.; Said, S.I.
J. Am. Chem. Soc. 96, 4973-4978, 1974
A;Reference number: A26231; MUID:74308014; PMID:4854585
A;Contents: annotation
A;Note: a 28-residue peptide having the sequence and biological activities (in two assay
R;Ichiki, Y.; Kitamura, K.; Kangawa, K.; Kawamoto, M.; Matsuo, H.; Eto, T.
Biochem. Biophys. Res. Commun. 187, 1587-1593, 1992
A;Title: Organ distribution and characterization of porcine peptides (VIP, CGRP and PHI)
A;Reference number: A56754; MUID:93038640; PMID:1329741
A;Accession: A56754
A;Molecule type: protein
A;Residues: 1-24 <ICH>
A;Experimental source: duodenum
A;Note: sequence extracted from NCBI backbone (NCBIP:114219)
R;Buscail, L.; Cauvin, A.; Gourlet, P.; Gossen, D.; de Neef, P.; Rathe, J.; Robberecht,
Biochim. Biophys. Acta 1038, 355-359, 1990
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: S09688; MUID:90254163; PMID:2340294
A;Contents: annotation
C;Comment: The biological source of vasoactive intestinal peptide is the duodenal mucosa
of myocardial contractility, stimulation of exocrine pancreatic secretion (in a secretin
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; neuropeptide
F;1-27/Product: peptide histidine-isoleucine #status experimental <P27>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (amide in mature form from following gly

Query Match 100.0%; Score 143; DB 1; Length 58;
Best Local Similarity 100.0%; Pred. No. 6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db         28 HSDAVFTDNYTRLRKQMAVKKYLNSILN 55
```

RESULT 7
A60038
vasoactive intestinal peptide precursor - crab-eating macaque (fragment)
C;Species: Macaca fascicularis (crab-eating macaque)
C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 20-Mar-1998
C;Accession: A60038
R;Benson, D.L.; Isackson, P.J.; Jones, E.G.
Brain Res. Mol. Brain Res. 9, 169-174, 1991
A;Title: In situ hybridization reveals VIP precursor mRNA-containing neurons in monkey a
A;Reference number: A60038; MUID:91203476; PMID:1850073
A;Accession: A60038
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-145 <BEN>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasodi

Query Match 100.0%; Score 143; DB 2; Length 145;
Best Local Similarity 100.0%; Pred. No. 1.6e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        100 HSDAVFTDNYTRLRKQMAVKKYLNSILN 127
```

RESULT 8
VRHU
vasoactive intestinal peptide precursor [validated] - human
N;Alternate names: VIP precursor
N;Contains: peptide histidine-methionine (PHM-27); peptide histidine-valine (PHV-42); va
C;Species: Homo sapiens (man)
C;Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 08-Dec-2000
C;Accession: A23296; A93313; A60205; A26361; A27419; JH0618; I51955; I56494; I56988; A01
R;Tsukada, T.; Horovitch, S.J.; Montminy, M.R.; Mandel, G.; Goodman, R.H.
DNA 4, 293-300, 1985
A;Title: Structure of the human vasoactive intestinal polypeptide gene.
A;Reference number: A90952; MUID:86004065; PMID:3899557
A;Accession: A23296
A;Molecule type: DNA
A;Residues: 1-170 <TSU>
A;Cross-references: GB:M11553; NID:g340243; PIDN:AAA61284.1; PID:g340246
A;Note: the authors translated the codon GAA for residue 48 as Gln
R;Itoh, N.; Obata, K.; Yanaihara, N.; Okamoto, H.
Nature 304, 547-549, 1983
A;Title: Human preprovasoactive intestinal polypeptide contains a novel PHI-27-like pept
A;Reference number: A93313; MUID:83271523; PMID:6571696
A;Accession: A93313
A;Molecule type: mRNA
A;Residues: 1-170 <ITO>
A;Cross-references: GB:L00157; GB:J00320; NID:g340277; PIDN:AAA61289.1; PID:g340280
R;Gozes, I.; Giladi, E.; Shani, Y.
J. Neurochem. 48, 1136-1141, 1987
A;Title: Vasoactive intestinal peptide gene: putative mechanism of information storage a
A;Reference number: A60205; MUID:87140054; PMID:2434617
A;Accession: A60205
A;Molecule type: mRNA
A;Residues: 78-155 <GOZ>
A;Cross-references: GB:M31645; GB:M32162; NID:g340250; PIDN:AAA61285.1; PID:g553809
A;Note: this abundant mRNA from a human buccal tumor line contains an unspliced intron
R;Linder, S.; Barkhem, T.; Norberg, A.; Persson, H.; Schalling, M.; Hokfelt, T.; Magnuss
Proc. Natl. Acad. Sci. U.S.A. 84, 605-609, 1987
A;Title: Structure and expression of the gene encoding the vasoactive intestinal peptide
A;Reference number: A26361; MUID:87092456; PMID:3025882
A;Accession: A26361
A;Molecule type: DNA
A;Residues: 1-115,'L',117-135,'G',137-170 <LIN>
A;Cross-references: GB:M14623; NID:g340271; PIDN:AAA61288.1; PID:g340273
A;Note: the authors translated the codon TTA for residue 116 as Ser and GGC for residue
R;Yiangou, Y.; Di Marzo, V.; Spokes, R.A.; Panico, M.; Morris, H.R.; Bloom, S.R.
J. Biol. Chem. 262, 14010-14013, 1987
A;Title: Isolation, characterization, and pharmacological actions of peptide histidine v
A;Reference number: A27419; MUID:88007645; PMID:3654650
A;Accession: A27419
A;Molecule type: protein
A;Residues: 81-122 <YIA>
R;Kitamura, K.; Kangawa, K.; Kawamoto, M.; Ichiki, Y.; Matsuo, H.; Eto, T.
Biochem. Biophys. Res. Commun. 185, 134-141, 1992
A;Title: Isolation and characterization of peptides which act on rat platelets, from a p
A;Reference number: JH0618; MUID:92287083; PMID:1318039
A;Accession: JH0618
A;Molecule type: protein
A;Residues: 125-152 <KIT>
A;Experimental source: pheochromocytoma
R;Yamagami, T.; Ohsawa, K.; Nishizawa, M.; Inoue, C.; Gotoh, E.; Yanaihara, N.; Yamamoto
Ann. N. Y. Acad. Sci. 527, 87-102, 1988
A;Title: Complete nucleotide sequence of human vasoactive intestinal peptide/PHM-27 gene
A;Reference number: I51955; MUID:88267775; PMID:2839091
A;Accession: I51955
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-170 <RES>
A;Cross-references: GB:M33027; NID:g340253; PIDN:AAA69515.1; PID:g340254
R;Gozes, I.; Giladi, E.; Shani, Y.

J. Neurochem. 47, 1136-1141, 1987
A;Title: Vasoactive intestinal peptide gene: Putative mechanism of information storage a
A;Reference number: I56494
A;Accession: I56494
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 78-155 <RE2>
A;Cross-references: GB:M32162; NID:g340250; PIDN:AAA61285.1; PID:g553809
R;Bloom, S.R.; Christofides, N.D.; Delamarter, J.; Buell, G.; Kawashima, E.; Polak, J.M.
Lancet 2, 1163-1165, 1983
A;Title: Diarrhoea in vipoma patients associated with cosecretion of a second active pep
A;Reference number: I56988; MUID:84066682; PMID:6139527
A;Accession: I56988
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 50-170 <RE3>
A;Cross-references: GB:M54930; NID:g340247; PIDN:AAA63268.1; PID:g340248
C;Genetics:
A;Gene: GDB:VIP
A;Cross-references: GDB:120490; OMIM:192320
A;Map position: 6q26-6q27
A;Introns: 36/2; 77/2; 112/2; 156/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; glycoprotein; hormone; intestine; neurop
F;1-20/Domain: signal sequence #status predicted <SIG>
F;81-122/Product: peptide histidine-valine (PHV-42) #status experimental <PHV>
F;81-107/Product: peptide histidine-methionine (PHM-27) #status experimental <PHM>
F;125-152/Product: vasoactive intestinal peptide #status experimental <VIP>
F;68,133/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;107/Modified site: amidated carboxyl end (Met) (amide in mature form from following gl
F;152/Modified site: amidated carboxyl end (Asn) (amide in mature form from following gl

Query Match 100.0%; Score 143; DB 1; Length 170;
Best Local Similarity 100.0%; Pred. No. 1.9e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 125 HSDAVFTDNYTRLRKQMAVKKYLNSILN 152

RESULT 9
VRRT
vasoactive intestinal peptide precursor - rat
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Rattus norvegicus (Norway rat)
C;Date: 28-Feb-1986 #sequence_revision 30-Jun-1993 #text_change 18-Jun-1999
C;Accession: A60053; B60037; A01548; A28102; A60586; A60587; S09691
R;Giladi, E.; Shani, Y.; Gozes, I.
Brain Res. Mol. Brain Res. 7, 261-267, 1990
A;Title: The complete structure of the rat VIP gene.
A;Reference number: A60053; MUID:90244869; PMID:2159586
A;Accession: A60053
A;Molecule type: DNA
A;Residues: 1-170 <GIL>
A;Note: the authors translated the codon GAG for residue 67 as Gln
R;Lamperti, E.D.; Rosen, K.M.; Villa-Komaroff, L.
Brain Res. Mol. Brain Res. 9, 217-231, 1991
A;Title: Characterization of the gene and messages for vasoactive intestinal polypeptide
A;Reference number: A60037; MUID:91232388; PMID:1851524
A;Accession: B60037
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 78-155 <LAM>
R;Nishizawa, M.; Hayakawa, Y.; Yanaihara, N.; Okamoto, H.
FEBS Lett. 183, 55-59, 1985
A;Title: Nucleotide sequence divergence and functional constraint in VIP precursor mRNA
A;Reference number: A01548; MUID:85154612; PMID:3838518
A;Accession: A01548
A;Molecule type: mRNA
A;Residues: 9-170 <NIS>
A;Cross-references: GB:X02341; NID:g57481; PIDN:CAA26200.1; PID:g758267
A;Experimental source: cerebral cortex
R;Goetzl, E.J.; Sreedharan, S.P.; Turck, C.W.
J. Biol. Chem. 263, 9083-9086, 1988
A;Title: Structurally distinctive vasoactive intestinal peptides from rat basophilic leu
A;Reference number: A28102; MUID:88243784; PMID:3379062
A;Accession: A28102
A;Molecule type: protein
A;Residues: 134-152 <GOE>
A;Note: the source of this novel short form of VIP was rat basophilic leukemia cells
R;Cauvin, A.; Vandermeers, A.; Vandermeers-Piret, M.C.; Rathe, J.; Robberecht, P.; Chris
Endocrinology 125, 1296-1302, 1989
A;Title: Peptide histidine isoleucinamide (PHI)-(1-27)-Gly as a new major form of PHI in
A;Reference number: A60586; MUID:89338237; PMID:2759027
A;Accession: A60586
A;Molecule type: protein
A;Residues: 81-108 <CAU>
R;Cauvin, A.; Vandermeers, A.; Vandermeers-Piret, M.C.; Robberecht, P.; Christophe, J.
Endocrinology 125, 2645-2655, 1989
A;Title: Variable distribution of three molecular forms of peptide histidine isoleucinam
A;Reference number: A60587; MUID:90005222; PMID:2792003
A;Accession: A60587
A;Molecule type: protein
A;Residues: 81-122 <CA2>
R;Buscail, L.; Cauvin, A.; Gourlet, P.; Gossen, D.; de Neef, P.; Rathe, J.; Robberecht,
Biochim. Biophys. Acta 1038, 355-359, 1990
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: S09688; MUID:90254163; PMID:2340294
A;Contents: annotation; comparison of mammalian PHI sequences
C;Comment: Two active peptides are released from the VIP precursor by cleavage at paired
C;Genetics:
A;Introns: 36/2; 77/2; 156/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; cerebral cortex; duplication; glycoprotein; hormone;
F;1-21/Domain: signal sequence #status predicted <SIG>
F;81-122/Product: PHI-42 #status experimental <PH42>
F;81-108/Product: PHI-27-Gly #status experimental <PHIG>
F;81-107/Product: peptide histidine-isoleucine (PHI-27) #status predicted <PHI>
F;125-152/Product: vasoactive intestinal peptide #status predicted <VIP>
F;107/Modified site: amidated carboxyl end (Ile) (amide in mature form from following gl
F;133/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;152/Modified site: amidated carboxyl end (Asn) (amide in mature form from following gl

Query Match 100.0%; Score 143; DB 1; Length 170;
Best Local Similarity 100.0%; Pred. No. 1.9e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||||||||||||||||||||||
Db 125 HSDAVFTDNYTRLRKQMAVKKYLNSILN 152

RESULT 10
A60037
vasoactive intestinal peptide precursor - mouse
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Mus musculus (house mouse)
C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 20-Apr-2001
C;Accession: A60037; I49386
R;Lamperti, E.D.; Rosen, K.M.; Villa-Komaroff, L.
Brain Res. Mol. Brain Res. 9, 217-231, 1991
A;Title: Characterization of the gene and messages for vasoactive intestinal polypeptide
A;Reference number: A60037; MUID:91232388; PMID:1851524
A;Accession: A60037
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-170 <LAM>
R;Sena, M.; Bravo, D.T.; Von Agoston, D.; Waschek, J.A.
DNA Seq. 5, 25-29, 1994
A;Title: High conservation of upstream regulatory sequences on the human and mouse vaso
A;Reference number: I49386; MUID:95201289; PMID:7894056
A;Accession: I49386
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-35 <RES>

A;Cross-references: EMBL:X74297; NID:g895871; PIDN:CAA52350.1; PID:g895872
C;Comment: Two active peptides are released from the VIP precursor by cleavage at paired
C;Genetics:
A;Gene: VIP
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; cerebral cortex; duplication; glycoprotein; hormone;
F;1-21/Domain: signal sequence #status predicted <SIG>
F;81-107/Product: PHI-27 #status predicted <PHI>
F;125-152/Product: vasoactive intestinal peptide #status predicted <VIP>
F;107/Modified site: amidated carboxyl end (Ile) (amide in mature form from following gl
F;133/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;152/Modified site: amidated carboxyl end (Asn) (amide in mature form from following gl

Query Match 100.0%; Score 143; DB 2; Length 170;
Best Local Similarity 100.0%; Pred. No. 1.9e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        125 HSDAVFTDNYTRLRKQMAVKKYLNSILN 152
```

RESULT 11
VRGP
vasoactive intestinal peptide precursor - guinea pig (fragments)
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Cavia porcellus (guinea pig)
C;Date: 31-Mar-1988 #sequence_revision 19-Apr-1996 #text_change 20-Mar-1998
C;Accession: A26175; S09688; A57082; B60304
R;Du, B.H.; Eng, J.; Hulmes, J.D.; Chang, M.; Pan, Y.C.E.; Yalow, R.S.
Biochem. Biophys. Res. Commun. 128, 1093-1098, 1985
A;Title: Guinea pig has a unique mammalian VIP.
A;Reference number: A26175; MUID:85225523; PMID:4004849
A;Accession: A26175
A;Molecule type: protein
A;Residues: 28-55 <DUB>
R;Buscail, L.; Cauvin, A.; Gourlet, P.; Gossen, D.; de Neef, P.; Rathe, J.; Robberecht,
Biochim. Biophys. Acta 1038, 355-359, 1990
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: S09688; MUID:90254163; PMID:2340294
A;Accession: S09688
A;Molecule type: protein
A;Residues: 1-27 <BUS>
A;Accession: A57082
A;Molecule type: protein
A;Residues: 28-55 <BU2>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasodi
F;1-27/Product: peptide histidine-isoleucine #status experimental <P27>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match 90.9%; Score 130; DB 1; Length 55;
Best Local Similarity 85.7%; Pred. No. 4.5e-12;
Matches 24; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||:||| |||||||||:||||||:||
Db         28 HSDALFTDTYTRLRKQMAMKKYLNSVLN 55
```

RESULT 12
VRCH
vasoactive intestinal peptide precursor - chicken
C;Species: Gallus gallus (chicken)
C;Date: 24-Apr-1984 #sequence_revision 10-Nov-1995 #text_change 18-Jun-1999
C;Accession: S47470; A91425; A90720; A01551
R;Talbot, R.T.; Dunn, I.C.; Wilson, P.W.; Sang, H.M.; Sharp, P.J.
submitted to the EMBL Data Library, August 1994
A;Description: Evidence for alternative splicing of the chicken VIP gene.
A;Reference number: S47470
A;Accession: S47470
A;Molecule type: mRNA
A;Residues: 1-165 <TAL>
A;Cross-references: EMBL:X80906; NID:g531364; PIDN:CAA56867.1; PID:g531365
R;Nilsson, A.
FEBS Lett. 60, 322-326, 1975
A;Title: Structure of the vasoactive intestinal octacosapeptide from chicken intestine.
A;Reference number: A91425; MUID:76210823; PMID:1227973
A;Accession: A91425
A;Molecule type: protein
A;Residues: 94-121 <NIL>
R;Bodanszky, M.; Lin, C.Y.; Yiotakis, A.E.; Mutt, V.; Said, S.I.
Bioorg. Chem. 5, 339-350, 1976
A;Title: Vasoactive intestinal peptide (VIP) from chicken. Synthesis and properties of t
A;Reference number: A90720
A;Contents: synthesis
A;Accession: A90720
A;Molecule type: protein
A;Residues: 107-121 <BOD>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; neuropeptide
F;1-25/Domain: signal sequence #status predicted <SIG>
F;94-121/Product: vasoactive intestinal peptide #status experimental <MAT>
F;121/Modified site: amidated carboxyl end (Thr) (amide in mature form from following gl

Query Match 89.5%; Score 128; DB 1; Length 165;
Best Local Similarity 88.9%; Pred. No. 2.8e-11;
Matches 24; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||||||||:| ||||||||||||:|
Db         94 HSDAVFTDNYSRFRKQMAVKKYLNSVL 120
```

RESULT 13
A60303
vasoactive intestinal peptide - smaller spotted catshark
C;Species: Scyliorhinus canicula (smaller spotted catshark, smaller spotted dogfish)
C;Date: 10-Nov-1992 #sequence_revision 10-Nov-1992 #text_change 21-Nov-1997
C;Accession: A60303; A60314; S07432
R;Dimaline, R.; Thwaites, D.T.; Young, J.; Lee, C.M.; Thorndyke, M.C.
Regul. Pept. 18, 356, 1987
A;Title: A novel family of VIP-like peptides from the dogfish Scyliorhinus canicula.
A;Reference number: A60303
A;Accession: A60303
A;Molecule type: protein
A;Residues: 1-28 <DIM>
A;Note: this reference is an abstract
R;Dimaline, R.; Thorndyke, M.C.; Young, J.
Regul. Pept. 14, 1-10, 1986
A;Title: Isolation and partial sequence of elasmobranch VIP.
A;Reference number: A60314; MUID:86234323; PMID:3715063
A;Accession: A60314
A;Molecule type: protein
A;Residues: 1-10 <DI2>
R;Dimaline, R.; Young, J.; Thwaites, D.T.; Lee, C.M.; Thorndyke, M.C.
Ann. N. Y. Acad. Sci. 527, 621-623, 1988
A;Title: Amino acid sequence of a biologically active vasoactive intestinal peptide from
A;Reference number: S07432
A;Accession: S07432
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-28 <DI3>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; intestine; neuropeptide
F;28/Modified site: amidated carboxyl end (Ala) #status experimental

Query Match 88.8%; Score 127; DB 2; Length 28;
Best Local Similarity 85.2%; Pred. No. 6.1e-12;
Matches 23; Conservative 4; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||||||||:|:|||||||||:||:|
Db          1 HSDAVFTDNYSRIRKQMAVKKYINSLL 27
```

RESULT 14
A38232
vasoactive intestinal peptide - North American opossum
N;Alternate names: VIP
C;Species: Didelphis virginiana, Didelphis marsupialis virginiana (North American opossu
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 21-Nov-1997
C;Accession: A38232
R;Eng, J.; Yu, J.; Rattan, S.; Yalow, R.S.
Proc. Natl. Acad. Sci. U.S.A. 89, 1809-1811, 1992
A;Title: Isolation and amino acid sequences of opossum vasoactive intestinal polypeptide
A;Reference number: A38232; MUID:92179271; PMID:1542675
A;Accession: A38232
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-28 <ENG>
A;Note: sequence extracted from NCBI backbone (NCBIP:87215)
C;Superfamily: glucagon
C;Keywords: duplication; intestine; neuropeptide

Query Match 83.9%; Score 120; DB 2; Length 28;
Best Local Similarity 82.1%; Pred. No. 6.4e-11;
Matches 23; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
||||||||:|||| |||||:|||:||||
Db 1 HSDAVFTDSYTRLLKQMAMRKYLDSILN 28

RESULT 15
JQ0361
vasoactive intestinal peptide - Atlantic cod (fragment)
C;Species: Gadus morhua (Atlantic cod)
C;Date: 07-Sep-1990 #sequence_revision 07-Sep-1990 #text_change 21-Nov-1997
C;Accession: JQ0361
R;Thwaites, D.T.; Young, J.; Thorndyke, M.C.; Dimaline, R.
Regul. Pept. 21, 436, 1988
A;Title: Isolation and characterisation of two teleost VIP's.
A;Reference number: JQ0361
A;Accession: JQ0361
A;Molecule type: protein
A;Residues: 1-25 <THW>
C;Superfamily: glucagon
C;Keywords: duplication; intestine; neuropeptide

Query Match 81.8%; Score 117; DB 2; Length 25;
Best Local Similarity 88.0%; Pred. No. 1.5e-10;
Matches 22; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNS 25
||||||||||:| ||||| ||||||
Db 1 HSDAVFTDNYSRFRKQMAAKKYLNS 25

RESULT 16
A61071
pituitary adenylate cyclase-activating polypeptide PACAP-27 - pig
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 21-Nov-1997
C;Accession: A61071
R;Miyata, A.; Jiang, L.; Oka, S.; Yoshihara, T.; Arimura, A.
Regul. Pept. 37, 325, 1992
A;Title: Identification of porcine pituitary adenylate cyclase activating polypeptide wi
A;Reference number: A61071
A;Accession: A61071
A;Molecule type: protein
A;Residues: 1-27 <MIY>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; neuropeptide
F;27/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match 74.1%; Score 106; DB 2; Length 27;
Best Local Similarity 70.4%; Pred. No. 6.8e-09;
Matches 19; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
||| :|||:|:| |||||||||| ::|
Db 1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27

RESULT 17
A49165
pituitary adenylate cyclase-activating polypeptide - laughing frog
N;Alternate names: PACAP
C;Species: Rana ridibunda (laughing frog)
C;Date: 19-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 21-Nov-1997
C;Accession: A49165
R;Chartrel, N.; Tonon, M.C.; Vaudry, H.; Conlon, J.M.
Endocrinology 129, 3367-3371, 1991
A;Title: Primary structure of frog pituitary adenylate cyclase-activating polypeptide (P
A;Reference number: A49165; MUID:92063899; PMID:1720095
A;Accession: A49165
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-38 <CHA>
A;Note: sequence extracted from NCBI backbone (NCBIP:66424)
C;Superfamily: glucagon
C;Keywords: duplication

Query Match 74.1%; Score 106; DB 2; Length 38;
Best Local Similarity 70.4%; Pred. No. 9.7e-09;
Matches 19; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
||| :|||:|:| |||||||||| ::|
Db 1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27

RESULT 18
S34767
neuropeptides precursor [similarity] - sockeye salmon
N;Contains: growth hormone-releasing hormone; pituitary adenylate cyclase-activating pol
C;Species: Oncorhynchus nerka (sockeye salmon)
C;Date: 06-Jan-1995 #sequence_revision 06-Jan-1995 #text_change 08-Dec-2000
C;Accession: S34767; S34766
R;Parker, D.B.; Coe, I.R.; Dixon, G.H.; Sherwood, N.M.
Eur. J. Biochem. 215, 439-448, 1993
A;Title: Two salmon neuropeptides encoded by one brain cDNA are structurally related to
A;Reference number: S34766; MUID:93345532; PMID:8344311
A;Accession: S34767
A;Molecule type: mRNA
A;Residues: 1-173 <PAR1>
A;Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A;Experimental source: clones SS/PCR 4 and SS/RACE 2
A;Accession: S34766
A;Molecule type: mRNA
A;Residues: 1-21,'S',23-60,'P',62-77,'G',79-121,'T',123-164,'N',166-170,'G',172-173 <PAR
A;Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A;Experimental source: clones SS/PCR 5 and SS/RACE 7
A;Note: the GenBank entry ONNEUR, release 117.0, has ambiguous nucleotides for the posit
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; neuropeptide
F;1-21/Domain: signal sequence #status predicted <SIG>
F;82-126/Product: growth hormone-releasing hormone #status predicted <GHR>
F;129-166/Product: pituitary adenylate cyclase-activating polypeptide #status predicted
F;166/Modified site: amidated carboxyl end (Lys) (in mature form from following glycine)

Query Match 74.1%; Score 106; DB 2; Length 173;
Best Local Similarity 70.4%; Pred. No. 4.7e-08;
Matches 19; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

Qy 1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
||| :|||:|:| |||||||||| ::|
Db 129 HSDGIFTDSYSRYRKQMAVKKYLAAVL 155

```
RESULT 19
A37786
pituitary adenylate cyclase-activating polypeptide precursor - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 28-Jun-1991 #sequence_revision 28-Jun-1991 #text_change 20-Jun-2000
C;Accession: A37786; S58467
R;Ogi, K.; Kimura, C.; Onda, H.; Arimura, A.; Fujino, M.
Biochem. Biophys. Res. Commun. 173, 1271-1279, 1990
A;Title: Molecular cloning and characterization of cDNA for the precursor of rat pituita
A;Reference number: A37786; MUID:91097560; PMID:2268329
A;Accession: A37786
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-175 <OGI>
A;Cross-references: GB:M63006; NID:g205957; PIDN:AAA41791.1; PID:g205958
R;Hurley, J.D.; Gardiner, J.V.; Jones, P.M.; Bloom, S.R.
Endocrinology 136, 550-557, 1995
A;Title: Cloning and molecular characterization of complementary deoxyribonucleic acid c
n the rat testis.
A;Reference number: S58467; MUID:95136947; PMID:7835287
A;Accession: S58467
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-6,'R',8-25,'L',27-175 <HUR>
A;Cross-references: EMBL:X80290; NID:g695710; PIDN:CAA56564.1; PID:g695711
A;Note: the authors translated the codon CTT for residue 26 as Pro
A;Note: in Genbank entry RRPITACA, release 113.0, the source is designated as Rattus rat
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hypothalamus; neuropeptide
F;131-168/Product: pituitary adenylate cyclase-activating polypeptide 38 #status experim
F;131-157/Product: pituitary adenylate cyclase-activating polypeptide 27 #status experim
F;157/Modified site: amidated carboxyl end (Leu) (amide in mature form from following gl
F;168/Modified site: amidated carboxyl end (Lys) (amide in mature form from following gl

  Query Match             74.1%;  Score 106;  DB 2;  Length 175;
  Best Local Similarity   70.4%;  Pred. No. 4.8e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        131 HSDGIFTDSYSRYRKQMAVKKYLAAVL 157


RESULT 20
A34044
pituitary adenylate cyclase-activating polypeptide precursor - sheep
N;Contains: PACAP-27; PACAP-38
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C;Date: 07-Jun-1990 #sequence_revision 07-Jun-1990 #text_change 20-Jun-2000
C;Accession: A34044; I47059; A33432; A35414; A61063; B61063
R;Kimura, C.; Ohkubo, S.; Ogi, K.; Hosoya, M.; Itoh, Y.; Onda, H.; Miyata, A.; Jiang, L.
Biochem. Biophys. Res. Commun. 166, 81-89, 1990
A;Title: A novel peptide which stimulates adenylate cyclase: molecular cloning and chara
A;Reference number: A90160; MUID:90147744; PMID:2302217
A;Accession: A34044
A;Molecule type: mRNA
A;Residues: 1-176 <KIM>
A;Cross-references: GB:M32216; NID:g166029; PIDN:AAA31575.1; PID:g166030
R;Ohkubo, S.; Kimura, C.; Ogi, K.; Okazaki, K.; Hosoya, M.; Onda, H.; Miyata, A.; Arimur
DNA Cell Biol. 11, 21-30, 1992
A;Title: Primary structure and characterization of the precursor to human pituitary aden
A;Reference number: I47059; MUID:92153305; PMID:1739432
A;Accession: I47059
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-176 <OHK>
A;Cross-references: GB:S83511; NID:g245803; PIDN:AAB21469.1; PID:g245804
R;Miyata, A.; Arimura, A.; Dahl, R.R.; Minamino, N.; Uehara, A.; Jiang, L.; Culler, M.D.
Biochem. Biophys. Res. Commun. 164, 567-574, 1989
A;Title: Isolation of a novel 38 residue-hypothalamic polypeptide which stimulates adeny
A;Reference number: A33432; MUID:90026436; PMID:2803320
A;Accession: A33432
A;Molecule type: protein
A;Residues: 132-169 <MIY1>
R;Miyata, A.; Jiang, L.; Dahl, R.D.; Kitada, C.; Kubo, K.; Fujino, M.; Minamino, N.; Arir
Biochem. Biophys. Res. Commun. 170, 643-648, 1990
A;Title: Isolation of a neuropeptide corresponding to the N-terminal 27 residues of the
A;Reference number: A35414; MUID:90343780; PMID:2383262
A;Accession: A35414
A;Molecule type: protein
A;Residues: 132-158 <MIY2>
R;Miyata, A.; Jiang, L.; Stibbs, H.H.; Arimura, A.
Regul. Pept. 38, 145-154, 1992
A;Title: Chemical characterization of vasoactive intestinal polypeptide-like immunoreact
A;Reference number: A61063; MUID:92245116; PMID:1574609
A;Contents: annotation
C;Comment: This peptide stimulates adenylate cyclase activity in pituitary cells.
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hypothalamus; neuropeptide
F;1-24/Domain: signal sequence #status predicted <SIG>
F;25-176/Product: pituitary adenylate cyclase-activating propolypeptide #status predicte
F;132-169/Product: pituitary adenylate cyclase-activating polypeptide 38 #status experim
F;132-158/Product: pituitary adenylate cyclase-activating polypeptide 27 #status experim
F;158/Modified site: amidated carboxyl end (Leu) (amide in mature form from following gl
F;169/Modified site: amidated carboxyl end (Lys) (amide in mature form from following gl

  Query Match             74.1%;  Score 106;  DB 2;  Length 176;
  Best Local Similarity   70.4%;  Pred. No. 4.8e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        132 HSDGIFTDSYSRYRKQMAVKKYLAAVL 158


RESULT 21
I84638
pituitary adenylate cyclase-activating polypeptide precursor - human
N;Contains: pituitary adenylate cyclase-activating polypeptide 27; pituitary adenylate cy
C;Species: Homo sapiens (man)
C;Date: 02-Aug-1996 #sequence_revision 02-Aug-1996 #text_change 20-Jun-2000
C;Accession: I84638; S20599; B34044
R;Ohkubo, S.; Kimura, C.; Ogi, K.; Okazaki, K.; Hosoya, M.; Onda, H.; Miyata, A.; Arimura
DNA Cell Biol. 11, 21-30, 1992
A;Title: Primary structure and characterization of the precursor to human pituitary aden
A;Reference number: I47059; MUID:92153305; PMID:1739432
A;Accession: I84638
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-176 <RES>
A;Cross-references: GB:S83513; NID:g245805; PIDN:AAB21470.1; PID:g245806
R;Hosoya, M.; Kimura, C.; Ogi, K.; Ohkubo, S.; Miyamoto, Y.; Kugoh, H.; Shimizu, M.; Onda
Biochim. Biophys. Acta 1129, 199-206, 1992
A;Title: Structure of the human pituitary adenylate cyclase activating polypeptide (PACAI
A;Reference number: S20599; MUID:92110383; PMID:1730060
A;Accession: S20599
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-176 <HOS>
A;Cross-references: EMBL:X60435; NID:g35229; PIDN:CAA42962.1; PID:g1132550
R;Kimura, C.; Ohkubo, S.; Ogi, K.; Hosoya, M.; Itoh, Y.; Onda, H.; Miyata, A.; Jiang, L.
Biochem. Biophys. Res. Commun. 166, 81-89, 1990
A;Title: A novel peptide which stimulates adenylate cyclase: molecular cloning and chara
A;Reference number: A90160; MUID:90147744; PMID:2302217
A;Accession: B34044
A;Molecule type: mRNA
A;Residues: 114-176 <KI2>
A;Cross-references: GB:M32216
C;Genetics:
A;Gene: GDB:ADCYAP1
A;Cross-references: GDB:128626; OMIM:102980
A;Map position: 18p11-18p11
A;Introns: 37/2; 81/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hypothalamus; neuropeptide
```

```
F;1-24/Domain: signal sequence #status predicted <SIG>
F;25-176/Product: pituitary adenylate cyclase-activating propolypeptide #status predicte
F;132-169/Product: pituitary adenylate cyclase-activating polypeptide 38 #status predict
F;132-158/Product: pituitary adenylate cyclase-activating polypeptide 27 #status predict
F;158/Modified site: amidated carboxyl end (Leu) (amide in mature form from following gl
F;169/Modified site: amidated carboxyl end (Lys) (amide in mature form from following gl

  Query Match             74.1%;  Score 106;  DB 2;  Length 176;
  Best Local Similarity   70.4%;  Pred. No. 4.8e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        132 HSDGIFTDSYSRYRKQMAVKKYLAAVL 158


RESULT 22
I50456
pituitary adenylate cyclase activating polypeptide - Siamese catfish
C;Species: Clarias macrocephalus (Siamese catfish)
C;Date: 04-Sep-1997 #sequence_revision 04-Sep-1997 #text_change 19-May-2000
C;Accession: I50456
R;McRory, J.E.; Parker, D.B.; Ngamvongchon, S.; Sherwood, N.M.
Mol. Cell. Endocrinol. 108, 169-177, 1995
A;Title: Sequence and expression of cDNA for pituitary adenylate cyclase activating poly
A;Reference number: I50456; MUID:95278612; PMID:7758831
A;Accession: I50456
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-195 <MCR>
A;Cross-references: EMBL:X79078; NID:g808949; PIDN:CAA55684.1; PID:g1016337
C;Genetics:
A;Gene: PACAP
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match             74.1%;  Score 106;  DB 2;  Length 195;
  Best Local Similarity   70.4%;  Pred. No. 5.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        130 HSDGIFTDSYSRYRKQMAVKKYLAAVL 156


RESULT 23
A61070
pituitary adenylate cyclase-activating polypeptide PACAP-38 - chicken
C;Species: Gallus gallus (chicken)
C;Date: 31-Dec-1993 #sequence_revision 03-Feb-1994 #text_change 21-Nov-1997
C;Accession: A61070
R;Yasuhara, T.; Mizuno, K.; Somogyvari-Vigh, A.; Komaki, G.; Arimura, A.
Regul. Pept. 37, 326, 1992
A;Title: Isolation and primary structure of chicken PACAP.
A;Reference number: A61070
A;Accession: A61070
A;Molecule type: protein
A;Residues: 1-24,26-31,'Y',32-38 <YAS>
A;Note: details in the text suggest that the sequence was misprinted in this report and
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; neuropeptide
F;38/Modified site: amidated carboxyl end (Lys) #status experimental

  Query Match             69.9%;  Score 100;  DB 2;  Length 38;
  Best Local Similarity   66.7%;  Pred. No. 7.2e-08;
  Matches   18;  Conservative    5;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              | | :|||:|:| |||||||||| ::|
Db          1 HIDGIFTDSYSRYRKQMAVKKYLAAVL 27


RESULT 24
HWGHD
exendin-2 - Gila monster
N;Alternate names: helodermin; helodermin S35
C;Species: Heloderma suspectum (Gila monster)
C;Date: 04-Dec-1986 #sequence_revision 04-Dec-1986 #text_change 07-May-1999
C;Accession: A01556; A37584; S07431
R;Hoshino, M.; Yanaihara, C.; Hong, Y.M.; Kishida, S.; Katsumaru, Y.; Vandermeers, A.; V
FEBS Lett. 178, 233-239, 1984
A;Title: Primary structure of helodermin, a VIP-secretin-like peptide isolated from Gila
A;Reference number: A01556; MUID:85076959; PMID:6439576
A;Accession: A01556
A;Molecule type: protein
A;Residues: 1-35 <HOS>
R;Vandermeers, A.; Gourlet, P.; Vandermeers-Piret, M.C.; Cauvin, A.; De Neef, P.; Rathe,
Eur. J. Biochem. 164, 321-327, 1987
A;Title: Chemical, immunological and biological properties of peptides like vasoactive-i
dum and Heloderma suspectum).
A;Reference number: A37584; MUID:87190398; PMID:3569266
A;Accession: A37584
A;Molecule type: protein
A;Residues: 1-7,'EE',10 <VAN>
R;Robberecht, P.; Vandermeers, A.; Vandermeers-Piret, M.C.; Gourlet, P.; Cauvin, A.; De
Ann. N. Y. Acad. Sci. 527, 186-203, 1988
A;Title: Helodermin-like peptides.
A;Reference number: S07431; MUID:88267739; PMID:3291692
A;Contents: annotation
A;Note: the discrepancies at positions 8 and 9 reported by Hoshino et al. (reference num
 result of errors in the sequence determinations; it is even possible that two variants
C;Comment: Exendins are venom components that are thought to bind to receptors for vasoa
g in secretion of amylase.
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; secretagogue; venom
F;35/Modified site: amidated carboxyl end (Pro) #status experimental

  Query Match             57.3%;  Score 82;  DB 1;  Length 35;
  Best Local Similarity   55.6%;  Pred. No. 2.8e-05;
  Matches   15;  Conservative    7;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||:||  |::|  ::|::||| |||
Db          1 HSDAIFTQQYSKLLAKLALQKYLASIL 27


RESULT 25
HWGHS
exendin-1 - Mexican beaded lizard
N;Alternate names: helodermin H38; helospectin I
N;Contains: helospectin II
C;Species: Heloderma horridum (Mexican beaded lizard)
C;Date: 04-Dec-1986 #sequence_revision 04-Dec-1986 #text_change 07-May-1999
C;Accession: A01555
R;Parker, D.S.; Raufman, J.P.; O'Donohue, T.L.; Bledsoe, M.; Yoshida, H.; Pisano, J.J.
J. Biol. Chem. 259, 11751-11755, 1984
A;Title: Amino acid sequences of helospectins, new members of the glucagon superfamily,
A;Reference number: A01555; MUID:85006896; PMID:6207171
A;Note: Heloderma suspectum (Gila monster)
A;Accession: A01555
A;Molecule type: protein
A;Residues: 1-38 <PAR>
R;Vandermeers, A.; Gourlet, P.; Vandermeers-Piret, M.C.; Cauvin, A.; De Neef, P.; Rathe,
Eur. J. Biochem. 164, 321-327, 1987
A;Title: Chemical, immunological and biological properties of peptides like vasoactive-i
dum and Heloderma suspectum).
A;Reference number: A37584; MUID:87190398; PMID:3569266
A;Contents: annotation
A;Note: reanalysis of peptide components in the venoms of Heloderma horridum and H. susp
s exendin-2 is the major peptide from H. suspectum venom (very small amounts of exendin-
 may have been misidentified
C;Comment: Exendins are venom components that are thought to bind to receptors for vasoa
g in secretion of amylase.
C;Superfamily: glucagon
C;Keywords: duplication; secretagogue; venom
F;1-38/Product: exendin-1 (helospectin I) #status experimental <HS1>
```

```
F;1-37/Product: helospectin II #status experimental <HS2>

  Query Match             55.2%;  Score 79;  DB 1;  Length 38;
  Best Local Similarity   55.6%;  Pred. No. 8.4e-05;
  Matches   15;  Conservative    6;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||| ||  |::|  ::|::|||  |||
Db          1 HSDATFTAEYSKLLAKLALQKYLESIL 27


RESULT 26
A32731
somatoliberin precursor - rat
N;Alternate names: growth hormone-releasing hormone
C;Species: Rattus norvegicus (Norway rat)
C;Date: 13-Jul-1990 #sequence_revision 13-Jul-1990 #text_change 16-Jul-1999
C;Accession: A32731; A41366; I67421
R;Mayo, K.E.; Cerelli, G.M.; Rosenfeld, M.G.; Evans, R.M.
Nature 314, 464-467, 1985
A;Title: Characterization of cDNA and genomic clones encoding the precursor to rat hypot
A;Reference number: A32731; MUID:85163768; PMID:3920534
A;Accession: A32731
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-104 <MAY>
A;Cross-references: GB:X02320
R;Gonzalez-Crespo, S.; Boronat, A.
Proc. Natl. Acad. Sci. U.S.A. 88, 8749-8753, 1991
A;Title: Expression of the rat growth hormone-releasing hormone gene in placenta is dire
A;Reference number: A41366; MUID:92020929; PMID:1924334
A;Accession: A41366
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-104 <GON>
A;Cross-references: GB:M73486; NID:g204311; PIDN:AAA41220.1; PID:g204312
R;Srivastava, C.H.; Monts, B.S.; Rothrock, J.K.; Peredo, M.J.; Pescovitz, O.H.
Endocrinology 136, 1502-1508, 1995
A;Title: Presence of a spermatogenic-specific promoter in the rat growth hormone-releasi
A;Reference number: I53290; MUID:95203210; PMID:7895659
A;Accession: I67421
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-104 <RES>
A;Cross-references: EMBL:U10156; NID:g498584; PIDN:AAC52184.1; PID:g498585
C;Genetics:
A;Gene: GHRH
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match             49.7%;  Score 71;  DB 2;  Length 104;
  Best Local Similarity   42.9%;  Pred. No. 0.0035;
  Matches   12;  Conservative    8;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:||:|| :| |:  |:  :| |: |:|
Db         31 HADAIFTSSYRRILGQLYARKLLHEIMN 58


RESULT 27
A41410
somatoliberin precursor - mouse
N;Alternate names: growth hormone-releasing hormone precursor
C;Species: Mus musculus (house mouse)
C;Date: 03-Apr-1992 #sequence_revision 03-Apr-1992 #text_change 16-Jul-1999
C;Accession: A41410
R;Frohman, M.A.; Downs, T.R.; Chomczynski, P.; Frohman, L.A.
Mol. Endocrinol. 3, 1529-1536, 1989
A;Title: Cloning and characterization of mouse growth hormone-releasing hormone (GRH) cc
A;Reference number: A41410; MUID:90114154; PMID:2481813
A;Accession: A41410
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-103 <FRO>
A;Cross-references: GB:M31658; NID:g193635; PIDN:AAA37739.1; PID:g309276
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match             49.0%;  Score 70;  DB 2;  Length 103;
  Best Local Similarity   42.9%;  Pred. No. 0.0049;
  Matches   12;  Conservative    6;  Mismatches   10;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              | ||:|| || :|  |:  :| :  |:|
Db         31 HVDAIFTTNYRKLLSQLYARKVIQDIMN 58


RESULT 28
RHBOS
somatoliberin - bovine
N;Alternate names: growth hormone-releasing factor
C;Species: Bos primigenius taurus (cattle)
C;Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997
C;Accession: A01554
R;Esch, F.; Bohlen, P.; Ling, N.; Brazeau, P.; Guillemin, R.
Biochem. Biophys. Res. Commun. 117, 772-779, 1983
A;Title: Isolation and characterization of the bovine hypothalamic growth hormone releas
A;Reference number: A01554; MUID:84127993; PMID:6421287
A;Accession: A01554
A;Molecule type: protein
A;Residues: 1-44 <ESC>
C;Comment: This protein was isolated from hypothalamus.
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hypothalamus
F;44/Modified site: amidated carboxyl end (Leu) #status experimental

  Query Match             44.8%;  Score 64;  DB 1;  Length 44;
  Best Local Similarity   35.7%;  Pred. No. 0.015;
  Matches   10;  Conservative   11;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |:|
Db          1 YADAIFTNSYRKVLGQLSARKLLQDIMN 28


RESULT 29
SECH
secretin - chicken
C;Species: Gallus gallus (chicken)
C;Date: 01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change 21-Nov-1997
C;Accession: A01545
R;Nilsson, A.; Carlquist, M.; Jornvall, H.; Mutt, V.
Eur. J. Biochem. 112, 383-388, 1980
A;Title: Isolation and characterization of chicken secretin.
A;Reference number: A01545; MUID:81114197; PMID:7460928
A;Accession: A01545
A;Molecule type: protein
A;Residues: 1-27 <NIL>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone
F;27/Modified site: amidated carboxyl end (Met) #status experimental

  Query Match             44.1%;  Score 63;  DB 1;  Length 27;
  Best Local Similarity   33.3%;  Pred. No. 0.013;
  Matches    9;  Conservative   10;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              '||| :||  |:::|    |:|:: :::
Db          1 HSDGLFTSEYSKMRGNAQVQKFIQNLM 27


RESULT 30
RHPG
somatoliberin - pig
N;Alternate names: growth hormone-releasing factor
C;Species: Sus scrofa domestica (domestic pig)
```

```
C;Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997
C;Accession: A01553
R;Bohlen, P.; Esch, F.; Brazeau, P.; Ling, N.; Guillemin, R.
Biochem. Biophys. Res. Commun. 116, 726-734, 1983
A;Title: Isolation and characterization of the porcine hypothalamic growth hormone relea
A;Reference number: A01553; MUID:84079886; PMID:6418166
A;Accession: A01553
A;Molecule type: protein
A;Residues: 1-44 <BOH>
C;Comment: The carboxyl-amidated somatoliberin is twice as active as that having a free
C;Comment: This protein was isolated from hypothalamus.
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hypothalamus
F;44/Modified site: amidated carboxyl end (Leu) #status experimental

  Query Match             41.3%;  Score 59;  DB 1;  Length 44;
  Best Local Similarity   32.1%;  Pred. No. 0.081;
  Matches    9;  Conservative   12;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |::
Db          1 YADAIFTNSYRKVLGQLSARKLLQDIMS 28


RESULT 31
RHHUS
somatoliberin precursor [validated] - human
N;Alternate names: GRF; growth hormone-releasing factor; somatocrinin
C;Species: Homo sapiens (man)
C;Date: 17-Dec-1982 #sequence_revision 19-Feb-1984 #text_change 08-Dec-2000
C;Accession: A21902; A93959; B93959; A93994; A94269; I37434; I37435; A01552
R;Mayo, K.E.; Cerelli, G.M.; Lebo, R.V.; Bruce, B.D.; Rosenfeld, M.G.; Evans, R.M.
Proc. Natl. Acad. Sci. U.S.A. 82, 63-67, 1985
A;Title: Gene encoding human growth hormone-releasing factor precursor: structure, seque
A;Reference number: A21902; MUID:85113171; PMID:3918305
A;Accession: A21902
A;Molecule type: DNA
A;Residues: 1-108 <MAY>
A;Cross-references: GB:L00134
R;Gubler, U.; Monahan, J.J.; Lomedico, P.T.; Bhatt, R.S.; Collier, K.J.; Hoffman, B.J.;
Proc. Natl. Acad. Sci. U.S.A. 80, 4311-4314, 1983
A;Title: Cloning and sequence analysis of cDNA for the precursor of human growth hormone
A;Reference number: A93959; MUID:83273612; PMID:6192430
A;Accession: A93959
A;Molecule type: mRNA
A;Residues: 1-108 <GUB>
A;Cross-references: GB:L00137; GB:K00646; NID:g337130; PIDN:AAA52608.1; PID:g337132
A;Accession: B93959
A;Molecule type: mRNA
A;Residues: 1-102;104-108 <GU2>
A;Cross-references: GB:L00137; GB:K00645; NID:g337130; PIDN:AAA52609.1; PID:g337133
A;Note: alternative splicing produces two somatoliberin precursors
R;Ling, N.; Esch, F.; Bohlen, P.; Brazeau, P.; Wehrenberg, W.B.; Guillemin, R.
Proc. Natl. Acad. Sci. U.S.A. 81, 4302-4306, 1984
A;Title: Isolation, primary structure, and synthesis of human hypothalamic somatocrinin:
A;Reference number: A93994; MUID:84272626; PMID:6431406
A;Accession: A93994
A;Molecule type: protein
A;Residues: 32-75 <LIN>
A;Experimental source: hypothalamus
R;Guillemin, R.; Brazeau, P.; Bohlen, P.; Esch, F.; Ling, N.; Wehrenberg, W.B.
Science 218, 585-587, 1982
A;Title: Growth hormone-releasing factor from a human pancreatic tumor that caused acrom
A;Reference number: A94269; MUID:83016666; PMID:6812220
A;Accession: A94269
A;Molecule type: protein
A;Residues: 32-75 <GUI>
R;Mayo, K.E.; Vale, W.; Rivier, J.; Rosenfeld, M.G.; Evans, R.M.
Nature 306, 86-88, 1983
A;Title: Expression-cloning and sequence of a cDNA encoding human growth hormone-releasi
A;Reference number: I37434; MUID:84039819; PMID:6415488
A;Accession: I37434
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 6-91,'D',93-101 <RES>
A;Cross-references: EMBL:X00094; NID:g31901; PIDN:CAA24955.1; PID:g1335088
A;Accession: I37435
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 32-75 <RE2>
A;Cross-references: EMBL:X00094; NID:g31901; PIDN:CAA24956.1; PID:g1335089
C;Comment: The amino-terminal residue of somatoliberin is essential for activity.
C;Comment: Both natural and synthetic somatoliberins stimulate the secretion of only som
C;Genetics:
A;Gene: GDB:GHRH; GHRF
A;Cross-references: GDB:119270; OMIM:139190
A;Map position: 20q11.2-20q11.2
A;Introns: 28/2; 63/2; 103/2
C;Superfamily: glucagon
C;Keywords: alternative splicing; amidated carboxyl end; duplication; hormone
F;1-108/Product: somatoliberin precursor, splice form 1 #status predicted <SP1>
F;1-102,104-108/Product: somatoliberin precursor, splice form 2 #status predicted <SF2>
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-31/Domain: propeptide #status predicted <PRP>
F;32-75/Product: somatoliberin #status experimental <SLB>
F;76-108/Domain: carboxyl-terminal propeptide #status predicted <CTP>
F;75/Modified site: amidated carboxyl end (Leu) (amide in mature form from following gly

  Query Match             41.3%;  Score 59;  DB 1;  Length 108;
  Best Local Similarity   32.1%;  Pred. No. 0.21;
  Matches    9;  Conservative   12;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |::
Db         32 YADAIFTNSYRKVLGQLSARKLLQDIMS 59


RESULT 32
C70392
gamma-glutamyl phosphate reductase - Aquifex aeolicus
C;Species: Aquifex aeolicus
C;Date: 08-May-1998 #sequence_revision 08-May-1998 #text_change 18-Aug-2003
C;Accession: C70392
R;Deckert, G.; Warren, P.V.; Gaasterland, T.; Young, W.G.; Lenox, A.L.; Graham, D.E.; Ov
V.
Nature 392, 353-358, 1998
A;Title: The complete genome of the hyperthermophilic bacterium Aquifex aeolicus.
A;Reference number: A70300; MUID:98196666; PMID:9537320
A;Accession: C70392
A;Status: preliminary; nucleic acid sequence not shown; translation not shown
A;Molecule type: DNA
A;Residues: 1-443 <AQF>
A;Cross-references: GB:AE000721; NID:g2983544; PIDN:AAC07119.1; PID:g2983545; GB:AE0006
A;Experimental source: strain VF5
C;Genetics:
A;Gene: proA
C;Superfamily: gamma-glutamyl phosphate reductase

  Query Match             40.6%;  Score 58;  DB 2;  Length 443;
  Best Local Similarity   41.4%;  Pred. No. 1.3;
  Matches   12;  Conservative    7;  Mismatches    6;  Indels    4;  Gaps    1;

Qy          1 HSDAVFTDNYTR----LRKQMAVKKYLNS 25
              ||||: |:|||:    ||:  :   |:|:
Db        354 HSDAIITENYTKAMKFLREVDSAAVYVNA 382


RESULT 33
I51301
proglucagon - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51301
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcripts
```

A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51301
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-206 <IRW>
A;Cross-references: GB:S78477; NID:g999386; PIDN:AAB34506.1; PID:g999387
C;Superfamily: glucagon
C;Keywords: duplication

Query Match 39.2%; Score 56; DB 2; Length 206;
Best Local Similarity 32.1%; Pred. No. 1.1;
Matches 9; Conservative 8; Mismatches 11; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:|  ||  :  ::   || |::|  ::|
Db        166 HADGTFTSDINKILDDMAAKEFLKWLIN 193
```

RESULT 34
B82354
deoxycytidylate deaminase-related protein VC0175 [imported] - Vibrio cholerae (strain N1
C;Species: Vibrio cholerae
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 02-Feb-2001
C;Accession: B82354
R;Heidelberg, J.F.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; Gwinn, M.L.; Dodson, R.J.;
chardson, D.; Ermolaeva, M.D.; Vamathevan, J.; Bass, S.; Qin, H.; Dragoi, I.; Sellers, P
1, R.R.; Mekalanos, J.J.; Venter, J.C.; Fraser, C.M.
Nature 406, 477-483, 2000
A;Title: DNA Sequence of both chromosomes of the cholera pathogen Vibrio cholerae.
A;Reference number: A82035; MUID:20406833; PMID:10952301
A;Accession: B82354
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-532 <HEI>
A;Cross-references: GB:AE004108; GB:AE003852; NID:g9654578; PIDN:AAF93351.1; GSPDB:GN001
A;Experimental source: serogroup O1; strain N16961; biotype El Tor
C;Genetics:
A;Gene: VC0175
A;Map position: 1

Query Match 37.1%; Score 53; DB 2; Length 532;
Best Local Similarity 35.7%; Pred. No. 8.2;
Matches 10; Conservative 9; Mismatches 7; Indels 2; Gaps 1;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:|: | |||  :  ::|  : :|::||
Db        496 HADSEFLDNYAEMEAKIA--QSVNALLN 521
```

RESULT 35
A27267
secretin - dog
C;Species: Canis lupus familiaris (dog)
C;Date: 31-Mar-1988 #sequence_revision 31-Mar-1988 #text_change 21-Nov-1997
C;Accession: A27267
R;Shinomura, Y.; Eng, J.; Yalow, R.S.
Life Sci. 41, 1243-1248, 1987
A;Title: Dog secretin: sequence and biologic activity.
A;Reference number: A27267; MUID:87314204; PMID:3626755
A;Accession: A27267
A;Molecule type: protein
A;Residues: 1-27 <SHI>
A;Experimental source: intestine
C;Superfamily: glucagon
C;Keywords: duplication

Query Match 36.4%; Score 52; DB 2; Length 27;
Best Local Similarity 33.3%; Pred. No. 0.51;
Matches 9; Conservative 7; Mismatches 11; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||  ||   :|||:   ::: |  ::
Db          1 HSDGTFTSELSRLRESARLQRLLQGLV 27
```

RESULT 36
AD1860
two-component response regulator alr0429 [imported] - Nostoc sp. (strain PCC 7120)
C;Species: Nostoc sp. PCC 7120
A;Note: Nostoc sp. strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7120
C;Date: 14-Dec-2001 #sequence_revision 14-Dec-2001 #text_change 25-Aug-2003
C;Accession: AD1860
R;Kaneko, T.; Nakamura, Y.; Wolk, C.P.; Kuritz, T.; Sasamoto, S.; Watanabe, A.; Iriguchi
Nakazaki, N.; Shimpo, S.; Sugimoto, M.; Takazawa, M.; Yamada, M.; Yasuda, M.; Tabata, S
DNA Res. 8, 205-213, 2001
A;Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing Cyanobacterium Anal
A;Reference number: AB1807; MUID:21595285; PMID:11759840
A;Accession: AD1860
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-276 <KUR>
A;Cross-references: GB:BA000019; PIDN:BAB72387.1; PID:g17129774; GSPDB:GN00179
A;Experimental source: strain PCC 7120
C;Genetics:
A;Gene: alr0429
C;Superfamily: response regulator with AraC-type DNA-binding domain; response regulator

Query Match 36.4%; Score 52; DB 2; Length 276;
Best Local Similarity 58.8%; Pred. No. 5.8;
Matches 10; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

```
Qy         11 TRLRKQMAVKKYLNSIL 27
              ||||||  :||  :  |::|
Db        121 TRLRKQASVKNWCNNLL 137
```

RESULT 37
A97300
gamma-glutamyl phosphate reductase [imported] - Clostridium acetobutylicum
C;Species: Clostridium acetobutylicum
C;Date: 14-Sep-2001 #sequence_revision 14-Sep-2001 #text_change 18-Aug-2003
C;Accession: A97300
R;Nolling, J.; Breton, G.; Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, R.; Lee,
.; Daly, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R.
J. Bacteriol. 183, 4823-4838, 2001
A;Title: Genome Sequence and Comparative Analysis of the Solvent-Producing Bacterium Clo
A;Reference number: A96900; MUID:21359325; PMID:21359325
A;Accession: A97300
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-418 <KUR>
A;Cross-references: GB:AE001437; PIDN:AAK81188.1; PID:g15026328; GSPDB:GN00168
A;Experimental source: Clostridium acetobutylicum ATCC824
C;Genetics:
A;Gene: CAC3254
C;Superfamily: gamma-glutamyl phosphate reductase

Query Match 36.4%; Score 52; DB 2; Length 418;
Best Local Similarity 37.9%; Pred. No. 8.9;
Matches 11; Conservative 7; Mismatches 7; Indels 4; Gaps 1;

```
Qy          1 HSDAVFTDNYTR----LRKQMAVKKYLNS 25
              ||:|: |:|||     |::  |   |:|:
Db        341 HSEAIITENYTNAQRFLKEVDAAAVYVNA 369
```

RESULT 38
S07443
secretin - human
C;Species: Homo sapiens (man)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C;Accession: S07443
R;Carlquist, M.; Joernvall, H.; Forssmann, W.G.; Thulin, L.; Johansson, C.; Mutt, V.
IRCS Med. Sci. 13, 217-218, 1985
A;Title: Human secretin is not identical to the porcine/bovine hormone.
A;Reference number: S07443

A;Accession: S07443
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-27 <CAR>
C;Genetics:
A;Gene: GDB:SCT
A;Cross-references: GDB:270550
A;Map position: Xp21.1-Xp21.1
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;27/Modified site: amidated carboxyl end (Val) #status predicted

Query Match 35.0%; Score 50; DB 1; Length 27;
Best Local Similarity 33.3%; Pred. No. 0.99;
Matches 9; Conservative 7; Mismatches 11; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||  ||   :|||:   ::: |  ::
Db          1 HSDGTFTSELSRLREGARLQRLLQGLV 27
```

RESULT 39
SEBO
secretin - bovine
C;Species: Bos primigenius taurus (cattle)
C;Date: 31-Dec-1991 #sequence_revision 31-Dec-1991 #text_change 20-Mar-1998
C;Accession: A91291; A01544
R;Carlquist, M.; Jornvall, H.; Mutt, V.
FEBS Lett. 127, 71-74, 1981
A;Title: Isolation and amino acid sequence of bovine secretin.
A;Reference number: A91291; MUID:81237102; PMID:7250377
A;Accession: A91291
A;Molecule type: protein
A;Residues: 1-27 <CAR>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duodenal mucosa; duplication; hormone; secretagogue
F;27/Modified site: amidated carboxyl end (Val) #status experimental

Query Match 35.0%; Score 50; DB 1; Length 27;
Best Local Similarity 33.3%; Pred. No. 0.99;
Matches 9; Conservative 6; Mismatches 12; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||  ||   :|||    ::: |  ::
Db          1 HSDGTFTSELSRLRDSARLQRLLQGLV 27
```

RESULT 40
SESH
secretin - sheep
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: C60072
R;Bounjoua, Y.; Vandermeers, A.; Robberecht, P.; Vandermeers-Piret, M.C.; Christophe, J.
Regul. Pept. 32, 169-179, 1991
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: A60072; MUID:91239834; PMID:2034821
A;Accession: C60072
A;Molecule type: protein
A;Residues: 1-27 <BOU>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; intestine
F;27/Modified site: amidated carboxyl end (Val) #status experimental

Query Match 35.0%; Score 50; DB 1; Length 27;
Best Local Similarity 33.3%; Pred. No. 0.99;
Matches 9; Conservative 6; Mismatches 12; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||  ||   :|||    ::: |  ::
Db          1 HSDGTFTSELSRLRDSARLQRLLQGLV 27
```

Search completed: February 26, 2004, 10:23:03
Job time : 24 secs

GenCore version 5.1.6


OM protein - protein search, using sw model

Run on: February 26, 2004, 10:20:56 ; Search time 11 Seconds
(without alignments)
132.542 Million cell updates/sec

Title: US-09-929-818-1
Perfect score: 143
Sequence: 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 141681 seqs, 52070155 residues

Total number of hits satisfying chosen parameters: 141681

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_42:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 143 | 100.0 | 28 | 1 | VIP_SHEEP | P04565 ovis aries |
| 2 | 143 | 100.0 | 72 | 1 | VIP_BOVIN | P81401 bos taurus |
| 3 | 143 | 100.0 | 72 | 1 | VIP_PIG | P01284 sus scrofa |
| 4 | 143 | 100.0 | 72 | 1 | VIP_RABIT | P32649 oryctolagus |
| 5 | 143 | 100.0 | 170 | 1 | VIP_HUMAN | P01282 homo sapien |
| 6 | 143 | 100.0 | 170 | 1 | VIP_MOUSE | P32648 mus musculu |
| 7 | 143 | 100.0 | 170 | 1 | VIP_RAT | P01283 rattus norv |
| 8 | 130 | 90.9 | 72 | 1 | VIP_CAVPO | P04566 cavia porce |
| 9 | 128 | 89.5 | 28 | 1 | VIP_ALLMI | P48142 alligator m |
| 10 | 128 | 89.5 | 28 | 1 | VIP_RANRI | P81016 rana ridibu |
| 11 | 128 | 89.5 | 200 | 1 | VIP_CHICK | P48143 gallus gall |
| 12 | 128 | 89.5 | 200 | 1 | VIP_MELGA | P45644 meleagris g |
| 13 | 127 | 88.8 | 28 | 1 | VIP_SCYCA | P09685 scyliorhinu |
| 14 | 120 | 83.9 | 28 | 1 | VIP_DIDMA | P39089 didelphis m |
| 15 | 117 | 81.8 | 25 | 1 | VIP_GADMO | P09684 gadus morhu |
| 16 | 106 | 74.1 | 73 | 1 | PACA_PIG | P41535 s pituitary |
| 17 | 106 | 74.1 | 171 | 1 | PACA_RANRI | Q09169 r glucagon- |
| 18 | 106 | 74.1 | 173 | 1 | PACA_ONCNE | P41585 oncorhynchu |
| 19 | 106 | 74.1 | 175 | 1 | PACA_MOUSE | O70176 m pituitary |
| 20 | 106 | 74.1 | 175 | 1 | PACA_RAT | P13589 r pituitary |
| 21 | 106 | 74.1 | 176 | 1 | PACA_HUMAN | P18509 h pituitary |
| 22 | 106 | 74.1 | 176 | 1 | PACA_SHEEP | P16613 o pituitary |
| 23 | 106 | 74.1 | 195 | 1 | PACA_CLAMA | P48144 clarias mac |
| 24 | 102 | 71.3 | 38 | 1 | PACA_URAJA | P81039 uranoscopus |
| 25 | 100 | 69.9 | 175 | 1 | PACA_CHICK | P41534 g glucagon- |
| 26 | 84 | 58.7 | 35 | 1 | EXE2_HELSU | P04204 heloderma s |
| 27 | 79 | 55.2 | 38 | 1 | EXE1_HELSU | P04203 heloderma s |
| 28 | 71 | 49.7 | 104 | 1 | SLIB_RAT | P09916 rattus norv |
| 29 | 70 | 49.0 | 103 | 1 | SLIB_MOUSE | P16043 mus musculu |
| 30 | 65 | 45.5 | 44 | 1 | SLIB_SHEEP | P07217 ovis aries |
| 31 | 64 | 44.8 | 106 | 1 | SLIB_BOVIN | P01288 bos taurus |
| 32 | 63 | 44.1 | 27 | 1 | SECR_CHICK | P01280 gallus gall |
| 33 | 59 | 41.3 | 44 | 1 | SLIB_PIG | P01287 sus scrofa |
| 34 | 59 | 41.3 | 108 | 1 | SLIB_HUMAN | P01286 homo sapien |
| 35 | 58 | 40.6 | 107 | 1 | SLIB_MESAU | Q60549 mesocricetu |
| 36 | 58 | 40.6 | 435 | 1 | PROA_AQUAE | O67166 aquifex aeo |
| 37 | 57 | 39.9 | 204 | 1 | GLUC_HELSU | O12956 heloderma s |
| 38 | 56 | 39.2 | 206 | 1 | GLUC_CHICK | P01277 gallus gall |
| 39 | 54 | 37.8 | 45 | 1 | SLIB_CYPCA | P42692 cyprinus ca |
| 40 | 52 | 36.4 | 27 | 1 | SECR_CANFA | P09910 canis famil |
| 41 | 52 | 36.4 | 418 | 1 | PROA_CLOAB | Q97e62 clostridium |
| 42 | 51 | 35.7 | 321 | 1 | NADA_SULTO | Q972d1 sulfolobus |
| 43 | 50 | 35.0 | 27 | 1 | SECR_SHEEP | P31299 ovis aries |
| 44 | 50 | 35.0 | 121 | 1 | SECR_HUMAN | P09683 homo sapien |
| 45 | 50 | 35.0 | 131 | 1 | SECR_PIG | P01279 sus scrofa |

ALIGNMENTS

```
RESULT 1
VIP_SHEEP
ID   VIP_SHEEP      STANDARD;      PRT;    28 AA.
AC   P04565;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide (VIP).
GN   VIP.
OS   Ovis aries (Sheep),
OS   Capra hircus (Goat), and
OS   Canis familiaris (Dog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Caprinae; Ovis.
OX   NCBI_TaxID=9940, 9925, 9615;
RN   [1]
RP   SEQUENCE.
RC   SPECIES=Sheep; TISSUE=Brain;
RX   MEDLINE=91045331; PubMed=2235680;
RA   Gafvelin G.;
RT   "Isolation and primary structure of VIP from sheep brain.";
RL   Peptides 11:703-706(1990).
RN   [2]
RP   SEQUENCE.
RC   SPECIES=Sheep; TISSUE=Small intestine;
RX   MEDLINE=91239834; PubMed=2034821;
RA   Bounjoua Y., Vandermeers A., Robberecht P., Vandermeers-Piret M.C.,
RA   Christophe J.;
RT   "Purification and amino acid sequence of vasoactive intestinal
RT   peptide, peptide histidine isoleucinamide and secretin from the ovine
RT   small intestine.";
RL   Regul. Pept. 32:169-179(1991).
RN   [3]
RP   SEQUENCE.
RC   SPECIES=C.hircus, and C.familiaris;
RX   MEDLINE=86313167; PubMed=3748846;
RA   Eng J., Du B.-H., Raufman J.-P., Yalow R.S.;
RT   "Purification and amino acid sequences of dog, goat and guinea pig
RT   VIPs.";
RL   Peptides 7 Suppl. 1:17-20(1986).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A60304; A60304.
DR   PIR; B60072; VRSH.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation; Hormone.
FT   MOD_RES      28     28       AMIDATION.
SQ   SEQUENCE   28 AA;  3327 MW;  EF313FB573FF6F3F CRC64;
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  Query Match             100.0%;  Score 143;  DB 1;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 5.2e-15;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
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RESULT 2
VIP_BOVIN
ID   VIP_BOVIN      STANDARD;      PRT;    72 AA.
AC   P81401;
DT   15-DEC-1998 (Rel. 37, Created)
DT   15-DEC-1998 (Rel. 37, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP) (Fragment).
GN   VIP.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE OF 1-27.
RC   TISSUE=Duodenum;
RX   MEDLINE=85027215; PubMed=6548446;
RA   Carlquist M., Kaiser R., Tatemoto K., Joernvall H., Mutt V.;
RT   "A novel form of the polypeptide PHI isolated in high yield from
RT   bovine upper intestine. Relationships to other peptides of the
RT   glucagon-secretin family.";
RL   Eur. J. Biochem. 144:243-247(1984).
RN   [2]
RP   SEQUENCE OF 45-72.
RC   TISSUE=Intestine;
RX   MEDLINE=80092152; PubMed=520589;
RA   Carlquist M., Mutt V., Joernvall H.;
RT   "Isolation and characterization of bovine vasoactive intestinal
RT   peptide (VIP).";
RL   FEBS Lett. 108:457-460(1979).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHI also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- MISCELLANEOUS: X's at positions 28 to 44 were included by homology
CC       with the human precursor sequence.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Cleavage on pair of basic residues; Amidation;
KW   Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     27       INTESTINAL PEPTIDE PHI-27.
FT   PEPTIDE      45     72       VASOACTIVE INTESTINAL PEPTIDE.
FT   MOD_RES      27     27       AMIDATION.
FT   MOD_RES      72     72       AMIDATION.
FT   NON_TER      72     72
SQ   SEQUENCE   72 AA;  8194 MW;  EF113360E5C1D525 CRC64;
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  Query Match             100.0%;  Score 143;  DB 1;  Length 72;
  Best Local Similarity   100.0%;  Pred. No. 1.4e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db         45 HSDAVFTDNYTRLRKQMAVKKYLNSILN 72
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RESULT 3
VIP_PIG
ID   VIP_PIG        STANDARD;      PRT;    72 AA.
AC   P01284; Q9TRN0;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP) (Fragment).
GN   VIP.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
RN   [1]
RP   SEQUENCE OF 1-27.
RX   MEDLINE=82082498; PubMed=6947244;
RA   Tatemoto K., Mutt V.;
RT   "Isolation and characterization of the intestinal peptide porcine PHI
RT   (PHI-27), a new member of the glucagon-secretin family.";
RL   Proc. Natl. Acad. Sci. U.S.A. 78:6603-6607(1981).
RN   [2]
RP   SEQUENCE OF 1-24.
RC   TISSUE=Duodenum;
RX   MEDLINE=93038640; PubMed=1329741;
RA   Ichiki Y., Kitamura K., Kangawa K., Kawamoto M., Matsuo H., Eto T.;
RT   "Organ distribution and characterization of porcine peptides (VIP,
RT   CGRP and PHI) that increase cAMP in rat platelets.";
RL   Biochem. Biophys. Res. Commun. 187:1587-1593(1992).
RN   [3]
RP   SEQUENCE OF 45-72.
RX   MEDLINE=74167323; PubMed=4829446;
RA   Mutt V., Said S.I.;
RT   "Structure of the porcine vasoactive intestinal octacosapeptide. The
RT   amino-acid sequence. Use of kallikrein in its determination.";
RL   Eur. J. Biochem. 42:581-589(1974).
RN   [4]
RP   SYNTHESIS OF VIP.
RX   MEDLINE=74308014; PubMed=4854585;
RA   Bodanszky M., Klausner Y.S., Lin C.Y., Mutt V., Said S.I.;
RT   "Synthesis of the vasoactive intestinal peptide (VIP).";
RL   J. Am. Chem. Soc. 96:4973-4978(1974).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHI also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- MISCELLANEOUS: X's at positions 28 to 44 were included by homology
CC       with the human precursor sequence.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A01549; VRPG.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Cleavage on pair of basic residues; Amidation;
KW   Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     27       INTESTINAL PEPTIDE PHI-27.
FT   PEPTIDE      45     72       VASOACTIVE INTESTINAL PEPTIDE.
FT   MOD_RES      27     27       AMIDATION.
FT   MOD_RES      72     72       AMIDATION.
FT   NON_TER      72     72
SQ   SEQUENCE   72 AA;  8178 MW;  EF03B1F0E5C1CA3A CRC64;
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  Query Match             100.0%;  Score 143;  DB 1;  Length 72;
  Best Local Similarity   100.0%;  Pred. No. 1.4e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db         45 HSDAVFTDNYTRLRKQMAVKKYLNSILN 72
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RESULT 4
VIP_RABIT
ID   VIP_RABIT      STANDARD;      PRT;    72 AA.
AC   P32649;
DT   01-OCT-1993 (Rel. 27, Created)
DT   01-OCT-1993 (Rel. 27, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP) (Fragment).
GN   VIP.
OS   Oryctolagus cuniculus (Rabbit).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX   NCBI_TaxID=9986;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Small intestine;
RX   MEDLINE=90259845; PubMed=2342988;
RA   Gossen D., Buscail L., Cauvin A., Gourlet P., de Neef P., Rathe J.,
RA   Robberecht P., Vandermeers-Piret M.C., Vandermeers A., Christophe J.;
RT   "Amino acid sequence of VIP, PHI and secretin from the rabbit small
RT   intestine.";
RL   Peptides 11:123-128(1990).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHI also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- MISCELLANEOUS: X's at positions 28 to 44 were included by homology
CC       with the human precursor sequence.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Cleavage on pair of basic residues; Amidation;
KW   Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     27       INTESTINAL PEPTIDE PHI-27.
FT   PEPTIDE      45     72       VASOACTIVE INTESTINAL PEPTIDE.
FT   MOD_RES      27     27       AMIDATION.
FT   MOD_RES      72     72       AMIDATION.
FT   NON_TER      72     72
SQ   SEQUENCE   72 AA;  8178 MW;  EF03B1F0E5C1CA3A CRC64;

  Query Match             100.0%;  Score 143;  DB 1;  Length 72;
  Best Local Similarity   100.0%;  Pred. No. 1.4e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db         45 HSDAVFTDNYTRLRKQMAVKKYLNSILN 72


RESULT 5
VIP_HUMAN
ID   VIP_HUMAN      STANDARD;      PRT;    170 AA.
AC   P01282; Q96QK3;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP).
GN   VIP.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83271523; PubMed=6571696;
RA   Itoh N., Obata K.-I., Yanaihara N., Okamoto H.;
RT   "Human preprovasoactive intestinal polypeptide contains a novel
RT   PHI-27-like peptide, PHM-27.";
RL   Nature 304:547-549(1983).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=88267775; PubMed=2839091;
RA   Yamagami T., Ohsawa K., Nishizawa M., Inoue C., Gotoh E.,
RA   Yanaihara N., Yamamoto H., Okamoto H.;
RT   "Complete nucleotide sequence of human vasoactive intestinal
RT   peptide/PHM-27 gene and its inducible promoter.";
RL   Ann. N.Y. Acad. Sci. 527:87-102(1988).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86004065; PubMed=3899557;
RA   Tsukada T., Horovitch S.J., Montminy M.R., Mandel G., Goodman R.H.;
RT   "Structure of the human vasoactive intestinal polypeptide gene.";
RL   DNA 4:293-300(1985).
RN   [4]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=87092456; PubMed=3025882;
RA   Linder S., Barkhem T., Norberg A., Persson H., Schalling M.,
RA   Hoekfelt T., Magnusson G.;
RT   "Structure and expression of the gene encoding the vasoactive
RT   intestinal peptide precursor.";
RL   Proc. Natl. Acad. Sci. U.S.A. 84:605-609(1987).
RN   [5]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86016352; PubMed=2995945;
RA   Delamarter J.F., Buell G.N., Kawashima E., Polak J.M., Bloom S.R.;
RT   "Vasoactive intestinal peptide: expression of the prohormone in
RT   bacterial cells.";
RL   Peptides 6:95-102(1985).
RN   [6]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Prostate;
RX   MEDLINE=22388257; PubMed=12477932;
RA   Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA   Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA   Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA   Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA   Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA   Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA   Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA   Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA   Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA   Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA   Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA   Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA   Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA   Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA   Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA   Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA   Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT   "Generation and initial analysis of more than 15,000 full-length
RT   human and mouse cDNA sequences.";
RL   Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN   [7]
RP   SEQUENCE OF 8-170 FROM N.A.
RX   MEDLINE=86313155; PubMed=3748844;
RA   Gozes I., Bodener M., Shani Y., Fridkin M.;
RT   "Structure and expression of the vasoactive intestinal peptide (VIP)
RT   gene in a human tumor.";
RL   Peptides 7:1-6(1986).
RN   [8]
RP   SEQUENCE OF 50-170 FROM N.A.
RC   TISSUE=Pancreatic carcinoma;
RX   MEDLINE=84066682; PubMed=6139527;
RA   Bloom S.R., Delamarter J.F., Kawashima E., Christofides N.D.,
RA   Buell G., Polak J.M.;
RT   "Diarrhoea in vipoma patients associated with cosecretion of a second
RT   active peptide (peptide histidine isoleucine) explained by single
RT   coding gene.";
RL   Lancet 2:1163-1165(1983).
RN   [9]
RP   SEQUENCE OF 78-155 FROM N.A.
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RX   MEDLINE=87140054; PubMed=2434617;
RA   Gozes I., Giladi E., Shani Y.;
RT   "Vasoactive intestinal peptide gene: Putative mechanism of information
RT   storage at the RNA level.";
RL   J. Neurochem. 47:1136-1141(1987).
RN   [10]
RP   SEQUENCE OF 81-122.
RX   MEDLINE=88007645; PubMed=3654650;
RA   Yiangou Y., di Marzo V., Spokes R.A., Panico M., Morris H.R.,
RA   Bloom S.R.;
RT   "Isolation, characterization, and pharmacological actions of peptide
RT   histidine valine 42, a novel prepro-vasoactive intestinal peptide-
RT   derived peptide.";
RL   J. Biol. Chem. 262:14010-14013(1987).
RN   [11]
RP   SEQUENCE OF 127-152.
RC   TISSUE=Pheochromocytoma;
RX   MEDLINE=92287083; PubMed=1318039;
RA   Kitamura K., Kangawa K., Kawamoto M., Ichiki Y., Matsuo H., Eto T.;
RT   "Isolation and characterization of peptides which act on rat
RT   platelets, from a pheochromocytoma.";
RL   Biochem. Biophys. Res. Commun. 185:134-141(1992).
RN   [12]
RP   STRUCTURE BY NMR OF VIP.
RX   MEDLINE=91322343; PubMed=1863695;
RA   Theriault Y., Boulanger Y., St Pierre S.;
RT   "Structural determination of the vasoactive intestinal peptide by
RT   two-dimensional H-NMR spectroscopy.";
RL   Biopolymers 31:459-464(1991).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHM and PHV also cause vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L00157; AAA61289.1; -.
DR   EMBL; L00154; AAA61289.1; JOINED.
DR   EMBL; L00155; AAA61289.1; JOINED.
DR   EMBL; L00156; AAA61289.1; JOINED.
DR   EMBL; M33027; AAA69515.1; -.
DR   EMBL; M11553; AAA61284.1; -.
DR   EMBL; M11549; AAA61284.1; JOINED.
DR   EMBL; M11550; AAA61284.1; JOINED.
DR   EMBL; M11551; AAA61284.1; JOINED.
DR   EMBL; M11552; AAA61284.1; JOINED.
DR   EMBL; M14623; AAA61288.1; -.
DR   EMBL; M14619; AAA61288.1; JOINED.
DR   EMBL; M14620; AAA61288.1; JOINED.
DR   EMBL; M14621; AAA61288.1; JOINED.
DR   EMBL; M14622; AAA61288.1; JOINED.
DR   EMBL; M36610; AAA61286.1; -.
DR   EMBL; M36606; AAA61286.1; JOINED.
DR   EMBL; M36607; AAA61286.1; JOINED.
DR   EMBL; M36608; AAA61286.1; JOINED.
DR   EMBL; M36609; AAA61286.1; JOINED.
DR   EMBL; BC009794; AAH09794.1; -.
DR   EMBL; M36634; AAA61287.1; -.
DR   EMBL; M54930; AAA63268.1; -.
DR   EMBL; M32162; AAA61285.1; -.
DR   EMBL; M31645; AAA61285.1; JOINED.
DR   PIR; A23296; VRHU.
DR   Genew; HGNC:12693; VIP.
DR   MIM; 192320; -.
DR   GO; GO:0005184; F:neuropeptide hormone activity; TAS.
DR   GO; GO:0007589; P:fluid secretion; TAS.
DR   GO; GO:0007186; P:G-protein coupled receptor protein signalin. . .; TAS.
DR   GO; GO:0008284; P:positive regulation of cell proliferation; TAS.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Cleavage on pair of basic residues; Signal;
KW   Amidation; Hormone.
FT   SIGNAL        1     20       POTENTIAL.
FT   PROPEP       21     79
FT   PEPTIDE      81    107       INTESTINAL PEPTIDE PHM-27.
FT   PEPTIDE      81    122       INTESTINAL PEPTIDE PHV-42.
FT   PEPTIDE     125    152       VASOACTIVE INTESTINAL PEPTIDE.
FT   PROPEP      156    170
FT   MOD_RES     107    107       AMIDATION (G-108 PROVIDE AMIDE GROUP).
FT   MOD_RES     152    152       AMIDATION (G-153 PROVIDE AMIDE GROUP).
FT   CONFLICT     96     97       QL -> PP (IN REF. 7).
FT   CONFLICT    113    113       MISSING (IN REF. 6).
FT   CONFLICT    116    116       S -> L (IN REF. 4).
FT   CONFLICT    136    136       R -> G (IN REF. 4).
SQ   SEQUENCE   170 AA;  19168 MW;  93EC0177F89508FD CRC64;

  Query Match             100.0%;  Score 143;  DB 1;  Length 170;
  Best Local Similarity   100.0%;  Pred. No. 3.6e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        125 HSDAVFTDNYTRLRKQMAVKKYLNSILN 152


RESULT 6
VIP_MOUSE
ID   VIP_MOUSE      STANDARD;      PRT;   170 AA.
AC   P32648;
DT   01-OCT-1993 (Rel. 27, Created)
DT   01-OCT-1993 (Rel. 27, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP).
GN   VIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91232388; PubMed=1851524;
RA   Lamperti E.D., Rosen K.M., Villa-Komaroff L.;
RT   "Characterization of the gene and messages for vasoactive intestinal
RT   polypeptide (VIP) in rat and mouse.";
RL   Brain Res. Mol. Brain Res. 9:217-231(1991).
RN   [2]
RP   SEQUENCE OF 1-36 FROM N.A.
RC   STRAIN=C57BL/6; TISSUE=Spleen;
RX   MEDLINE=95201289; PubMed=7894056;
RA   Sena M., Bravo D.T., Agoston D., Waschek J.A.;
RT   "High conservation of upstream regulatory sequences on the human and
RT   mouse vasoactive intestinal peptide (VIP) genes.";
RL   DNA Seq. 5:25-29(1994).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHM also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; X74297; CAA52350.1; -.
DR   PIR; A60037; A60037.
DR   MGD; MGI:98933; Vip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Cleavage on pair of basic residues; Signal;
KW   Amidation; Hormone.
FT   SIGNAL        1     21       BY SIMILARITY.
FT   PROPEP       22     79
FT   PEPTIDE      81    107       INTESTINAL PEPTIDE PHI-27.
FT   PEPTIDE      81    122       INTESTINAL PEPTIDE PHI-42 (BY
FT                                SIMILARITY).
FT   PEPTIDE     125    152       VASOACTIVE INTESTINAL PEPTIDE.
FT   PROPEP      156    170
FT   MOD_RES     107    107       AMIDATION (G-108 PROVIDE AMIDE GROUP).
FT   MOD_RES     152    152       AMIDATION (G-153 PROVIDE AMIDE GROUP).
FT   CARBOHYD    133    133       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   170 AA;  19048 MW;  0164C831F8F5C73D CRC64;

  Query Match             100.0%;  Score 143;  DB 1;  Length 170;
  Best Local Similarity   100.0%;  Pred. No. 3.6e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        125 HSDAVFTDNYTRLRKQMAVKKYLNSILN 152


RESULT 7
VIP_RAT
ID   VIP_RAT        STANDARD;      PRT;   170 AA.
AC   P01283;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-OCT-1993 (Rel. 27, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP).
GN   VIP.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90244869; PubMed=2159586;
RA   Giladi E., Shani Y., Gozes I.;
RT   "The complete structure of the rat VIP gene.";
RL   Brain Res. Mol. Brain Res. 7:261-267(1990).
RN   [2]
RP   SEQUENCE OF 9-170 FROM N.A.
RC   TISSUE=Brain cortex;
RX   MEDLINE=85154612; PubMed=3838518;
RA   Nishizawa M., Hayakawa Y., Yanaihara N., Okamoto H.;
RT   "Nucleotide sequence divergence and functional constraint in VIP
RT   precursor mRNA evolution between human and rat.";
RL   FEBS Lett. 183:55-59(1985).
RN   [3]
RP   SEQUENCE OF 78-155 FROM N.A.
RX   MEDLINE=91232388; PubMed=1851524;
RA   Lamperti E.D., Rosen K.M., Villa-Komaroff L.;
RT   "Characterization of the gene and messages for vasoactive intestinal
RT   polypeptide (VIP) in rat and mouse.";
RL   Brain Res. Mol. Brain Res. 9:217-231(1991).
RN   [4]
RP   SEQUENCE OF 134-152.
RX   MEDLINE=88243784; PubMed=3379062;
RA   Goetzl E.J., Sreedharan S.P., Turck C.W.;
RT   "Structurally distinctive vasoactive intestinal peptides from rat
RT   basophilic leukemia cells.";
RL   J. Biol. Chem. 263:9083-9086(1988).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHI also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ----------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; X02341; CAA26200.1; -.
DR   PIR; A60053; VRRT.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Glycoprotein; Amidation; Signal; Hormone;
KW   Cleavage on pair of basic residues.
FT   SIGNAL        1     21
FT   PROPEP       22     79
FT   PEPTIDE      81    107       INTESTINAL PEPTIDE PHI-27.
FT   PEPTIDE      81    122       INTESTINAL PEPTIDE PHV-42 (BY
FT                                SIMILARITY).
FT   PEPTIDE     125    152       VASOACTIVE INTESTINAL PEPTIDE.
FT   PROPEP      156    170
FT   MOD_RES     107    107       AMIDATION (G-108 PROVIDE AMIDE GROUP).
FT   MOD_RES     152    152       AMIDATION (G-153 PROVIDE AMIDE GROUP).
FT   CARBOHYD     68     68       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    133    133       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   170 AA;  19079 MW;  202AEE82EBBD190B CRC64;

  Query Match             100.0%;  Score 143;  DB 1;  Length 170;
  Best Local Similarity   100.0%;  Pred. No. 3.6e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        125 HSDAVFTDNYTRLRKQMAVKKYLNSILN 152


RESULT 8
VIP_CAVPO
ID   VIP_CAVPO      STANDARD;      PRT;    72 AA.
AC   P04566;
DT   13-AUG-1987 (Rel. 05, Created)
DT   01-AUG-1990 (Rel. 15, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP) (Fragment).
GN   VIP.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE OF 1-27 AND 45-72.
RX   MEDLINE=90254163; PubMed=2340294;
RA   Buscail L., Cauvin A., Gourlet P., Gossen D., de Neef P., Rathe J.,
RA   Robberecht P., Vandermeers-Piret M.-C., Vandermeers A., Christophe J.;
RT   "Purification and amino acid sequence of vasoactive intestinal
RT   peptide, peptide histidine isoleucinamide (1-27) and secretin from
RT   the small intestine of guinea pig.";
RL   Biochim. Biophys. Acta 1038:355-359(1990).
RN   [2]
RP   SEQUENCE OF 45-72.
RX   MEDLINE=86313167; PubMed=3748846;
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RA   Eng J., Du B.-H., Raufman J.-P., Yalow R.S.;
RT   "Purification and amino acid sequences of dog, goat and guinea pig
RT   VIPs.";
RL   Peptides 7 Suppl. 1:17-20(1986).
RN   [3]
RP   SEQUENCE OF 45-72.
RX   MEDLINE=85225523; PubMed=4004849;
RA   Du B.-H., Eng J., Hulmes J.D., Chang M., Pan Y.-C.E., Yalow R.S.;
RT   "Guinea pig has a unique mammalian VIP.";
RL   Biochem. Biophys. Res. Commun. 128:1093-1098(1985).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHI also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- MISCELLANEOUS: X's at positions 28 to 44 were included by homology
CC       with the human precursor sequence.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A26175; VRGP.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Cleavage on pair of basic residues; Amidation;
KW   Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     27       INTESTINAL PEPTIDE PHI-27.
FT   PEPTIDE      45     72       VASOACTIVE INTESTINAL PEPTIDE.
FT   MOD_RES      27     27       AMIDATION.
FT   MOD_RES      72     72       AMIDATION.
FT   NON_TER      72     72
SQ   SEQUENCE   72 AA;  8241 MW;  D7B696E02C3C63FD CRC64;

  Query Match             90.9%;  Score 130;  DB 1;  Length 72;
  Best Local Similarity   85.7%;  Pred. No. 1.2e-12;
  Matches   24;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||:||| |||||||||:||||||:||
Db         45 HSDALFTDTYTRLRKQMAMKKYLNSVLN 72


RESULT 9
VIP_ALLMI
ID   VIP_ALLMI      STANDARD;      PRT;    28 AA.
AC   P48142; P01285;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide (VIP).
GN   VIP.
OS   Alligator mississippiensis (American alligator).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Crocodylidae; Alligatorinae; Alligator.
OX   NCBI_TaxID=8496;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Stomach;
RX   MEDLINE=93324451; PubMed=8101369;
RA   Wang Y., Conlon J.M.;
RT   "Neuroendocrine peptides (NPY, GRP, VIP, somatostatin) from the brain
RT   and stomach of the alligator.";
RL   Peptides 14:573-579(1993).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood
CC       pressure, stimulates myocardial contractility, increases
CC       glycogenolysis and relaxes the smooth muscle of trachea, stomach
CC       and gall bladder.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation; Hormone.
FT   MOD_RES      28     28       AMIDATION.
SQ   SEQUENCE   28 AA;  3320 MW;  17B42D7573FF6F37 CRC64;

  Query Match             89.5%;  Score 128;  DB 1;  Length 28;
  Best Local Similarity   88.9%;  Pred. No. 8.8e-13;
  Matches   24;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||||||||:| |||||||||||:|
Db          1 HSDAVFTDNYSRFRKQMAVKKYLNSVL 27


RESULT 10
VIP_RANRI
ID   VIP_RANRI      STANDARD;      PRT;    28 AA.
AC   P81016;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide (VIP).
OS   Rana ridibunda (Laughing frog) (Marsh frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae; Rana.
OX   NCBI_TaxID=8406;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=95309202; PubMed=7540547;
RA   Chartrel N., Wang Y., Fournier A., Vaudry H., Conlon J.M.;
RT   "Frog vasoactive intestinal polypeptide and galanin: primary
RT   structures and effects on pituitary adenylate cyclase.";
RL   Endocrinology 136:3079-3086(1995).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation; Hormone.
FT   MOD_RES      28     28       AMIDATION.
SQ   SEQUENCE   28 AA;  3320 MW;  17B42D7573FF6F37 CRC64;

  Query Match             89.5%;  Score 128;  DB 1;  Length 28;
  Best Local Similarity   88.9%;  Pred. No. 8.8e-13;
  Matches   24;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||||||||:| |||||||||||:|
Db          1 HSDAVFTDNYSRFRKQMAVKKYLNSVL 27


RESULT 11
VIP_CHICK
ID   VIP_CHICK      STANDARD;      PRT;   200 AA.
AC   P48143; P01285;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP).
GN   VIP.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
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RA   McFarlin D.R., Lehn D.A., Moran S.M., Macdonald M.J., Epstein M.L.;
RL   Submitted (MAY-1994) to the EMBL/GenBank/DDBJ databases.
RN   [2]
RP   SEQUENCE OF 1-84 AND 120-200 FROM N.A.
RC   TISSUE=Hypothalamus;
RA   Talbot R.T., Dunn I.C., Wilson P.W., Sang H.M., Sharp P.J.;
RL   Submitted (AUG-1994) to the EMBL/GenBank/DDBJ databases.
RN   [3]
RP   SEQUENCE OF 129-156.
RX   MEDLINE=76210823; PubMed=1227973;
RA   Nilsson A.;
RT   "Structure of the vasoactive intestinal octacosapeptide from chicken
RT   intestine. The amino acid sequence.";
RL   FEBS Lett. 60:322-326(1975).
RN   [4]
RP   SYNTHESIS OF VIP, AND SEQUENCE OF 139-156.
RA   Bodanszky M., Lin C.Y., Yiotakis A.E., Mutt V., Said S.I.;
RT   "Vasoactive intestinal peptide (VIP) from chicken. Synthesis and
RT   properties of the C-terminal hendecapeptide.";
RL   Bioorg. Chem. 5:339-350(1976).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHI also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=Long;
CC         IsoId=P48143-1; Sequence=Displayed;
CC       Name=Short;
CC         IsoId=P48143-2; Sequence=VSP_001758;
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; U09350; AAA87896.1; -.
DR   EMBL; X80906; CAA56867.1; -.
DR   PIR; S47470; VRCH.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Cleavage on pair of basic residues; Signal;
KW   Amidation; Hormone; Alternative splicing.
FT   SIGNAL       1     25       POTENTIAL.
FT   PROPEP       26    87
FT   PEPTIDE      89    115      INTESTINAL PEPTIDE PHI-27.
FT   PROPEP       119   126
FT   PEPTIDE      129   156      VASOACTIVE INTESTINAL PEPTIDE.
FT   PROPEP       160   200
FT   MOD_RES      156   156      AMIDATION (G-157 PROVIDE AMIDE GROUP).
FT   VARSPLIC     85    119      Missing (in isoform Short).
FT                               /FTId=VSP_001758.
SQ   SEQUENCE   200 AA;  22539 MW;  902A88F998CAB402 CRC64;

  Query Match             89.5%;  Score 128;  DB 1;  Length 200;
  Best Local Similarity   88.9%;  Pred. No. 7.3e-12;
  Matches   24;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||||||||||:| ||||||||||||:|
Db        129 HSDAVFTDNYSRFRKQMAVKKYLNSVL 155


RESULT 12
VIP_MELGA
ID   VIP_MELGA      STANDARD;      PRT;   200 AA.
AC   P45644;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide precursor (VIP).
GN   VIP.
OS   Meleagris gallopavo (Common turkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Meleagris.
OX   NCBI_TaxID=9103;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Nicholas white; TISSUE=Hypothalamus;
RX   MEDLINE=95289705; PubMed=7750483;
RA   You S., Silsby J.L., Farris J.A., Foster D.N., el Halawani M.E.;
RT   "Tissue-specific alternative splicing of turkey preprovasoactive
RT   intestinal peptide messenger ribonucleic acid, its regulation, and
RT   correlation with prolactin secretion.";
RL   Endocrinology 136:2602-2610(1995).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- FUNCTION: PHI also causes vasodilation.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L36641; AAA92866.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Cleavage on pair of basic residues; Signal;
KW   Amidation; Hormone.
FT   SIGNAL       1     25       POTENTIAL.
FT   PROPEP       26    87
FT   PEPTIDE      89    115      INTESTINAL PEPTIDE PHI-27.
FT   PROPEP       119   126
FT   PEPTIDE      129   156      VASOACTIVE INTESTINAL PEPTIDE.
FT   PROPEP       160   200
FT   MOD_RES      156   156      AMIDATION (G-157 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   200 AA;  22600 MW;  B35933495273F06D CRC64;

  Query Match             89.5%;  Score 128;  DB 1;  Length 200;
  Best Local Similarity   88.9%;  Pred. No. 7.3e-12;
  Matches   24;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||||||||||:| ||||||||||||:|
Db        129 HSDAVFTDNYSRFRKQMAVKKYLNSVL 155


RESULT 13
VIP_SCYCA
ID   VIP_SCYCA      STANDARD;      PRT;    28 AA.
AC   P09685;
DT   01-MAR-1989 (Rel. 10, Created)
DT   01-MAR-1989 (Rel. 10, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide (VIP).
OS   Scyliorhinus canicula (Spotted dogfish) (Spotted catshark).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Chondrichthyes;
OC   Elasmobranchii; Galeomorphii; Galeoidea; Carcharhiniformes;
OC   Scyliorhinidae; Scyliorhinus.
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OX   NCBI_TaxID=7830;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=87299819; PubMed=2441759;
RA   Dimaline R., Young J., Thwaites D.T., Lee C.M., Shuttleworth T.J.,
RA   Thorndyke M.C.;
RT   "A novel vasoactive intestinal peptide (VIP) from elasmobranch
RT   intestine has full affinity for mammalian pancreatic VIP receptors.";
RL   Biochim. Biophys. Acta 930:97-100(1987).
RN   [2]
RP   SEQUENCE.
RA   Dimaline R., Young J., Thwaites D.T., Lee C.M., Thorndyke M.C.;
RT   "Amino acid sequence of a biologically active vasoactive intestinal
RT   peptide from the elasmobranch Scyliorhinus canicula.";
RL   Ann. N.Y. Acad. Sci. 527:621-623(1988).
RN   [3]
RP   SEQUENCE OF 1-10.
RX   MEDLINE=86234323; PubMed=3715063;
RA   Dimaline R., Thorndyke M.C., Young J.;
RT   "Isolation and partial sequence of elasmobranch VIP.";
RL   Regul. Pept. 14:1-10(1986).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A60303; A60303.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation; Hormone.
FT   MOD_RES      28     28       AMIDATION.
SQ   SEQUENCE   28 AA;  3270 MW;  9014389573F81F3B CRC64;

  Query Match             88.8%;  Score 127;  DB 1;  Length 28;
  Best Local Similarity   85.2%;  Pred. No. 1.2e-12;
  Matches   23;  Conservative    4;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||||||||||:|:||||||||||:||:|
Db          1 HSDAVFTDNYSRIRKQMAVKKYINSLL 27


RESULT 14
VIP_DIDMA
ID   VIP_DIDMA      STANDARD;      PRT;     28 AA.
AC   P39089;
DT   01-FEB-1995 (Rel. 31, Created)
DT   01-FEB-1995 (Rel. 31, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide (VIP).
GN   VIP.
OS   Didelphis marsupialis virginiana (North American opossum).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Metatheria; Didelphimorphia; Didelphidae; Didelphis.
OX   NCBI_TaxID=9267;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=92179271; PubMed=1542675;
RA   Eng J., Yu J.-H., Rattan S., Yalow R.S.;
RT   "Isolation and amino acid sequences of opossum vasoactive intestinal
RT   polypeptide and cholecystokinin octapeptide.";
RL   Proc. Natl. Acad. Sci. U.S.A. 89:1809-1811(1992).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A38232; A38232.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation; Hormone.
FT   MOD_RES      28     28       AMIDATION.
SQ   SEQUENCE   28 AA;  3318 MW;  F01188A0A72F76D9 CRC64;

  Query Match             83.9%;  Score 120;  DB 1;  Length 28;
  Best Local Similarity   82.1%;  Pred. No. 1.4e-11;
  Matches   23;  Conservative    4;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |||||||||:|||| |||||::|||:||||
Db          1 HSDAVFTDSYTRLLKQMAMRKYLDSILN 28


RESULT 15
VIP_GADMO
ID   VIP_GADMO      STANDARD;      PRT;     25 AA.
AC   P09684;
DT   01-MAR-1989 (Rel. 10, Created)
DT   01-MAR-1989 (Rel. 10, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Vasoactive intestinal peptide (VIP) (Fragment).
OS   Gadus morhua (Atlantic cod).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Paracanthopterygii; Gadiformes; Gadidae; Gadus.
OX   NCBI_TaxID=8049;
RN   [1]
RP   SEQUENCE.
RA   Thwaites D.T., Young J., Thorndyke M.C., Dimaline R.;
RT   "Isolation and characterisation of two teleost VIP's.";
RL   Regul. Pept. 21:436-436(1988).
CC   -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC       stimulates myocardial contractility, increases glycogenolysis and
CC       relaxes the smooth muscle of trachea, stomach and gall bladder.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; JQ0361; JQ0361.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone.
FT   NON_TER      25     25
SQ   SEQUENCE   25 AA;  2978 MW;  1573FF6F374DB7E4 CRC64;

  Query Match             81.8%;  Score 117;  DB 1;  Length 25;
  Best Local Similarity   88.0%;  Pred. No. 3.4e-11;
  Matches   22;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNS 25
              ||||||||||:| ||||| ||||||
Db          1 HSDAVFTDNYSRFRKQMAAKKYLNS 25


RESULT 16
PACA_PIG
ID   PACA_PIG       STANDARD;      PRT;     73 AA.
AC   P41535; O97570;
DT   01-NOV-1995 (Rel. 32, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE   [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE   activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE   cyclase activating polypeptide-38 (PACAP-38) (PACAP38)] (Fragment).
GN   ADCYAP1.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
```

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RN   [1]
RP   SEQUENCE FROM N.A.
RA   Larsen N.J., Rothschild M.F.;
RT   "Porcine ADCYAP1 gene, partial genomic sequence.";
RL   Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases.
RN   [2]
RP   SEQUENCE OF 29-55.
RC   TISSUE=Hypothalamus;
RA   Miyata A., Jiang L., Oka S., Yoshihara T., Arimura A.;
RT   "Identification of porcine pituitary adenylate cyclase activating
RT   polypeptide with 27 residues in the hypothalamic extracts.";
RL   Regul. Pept. 37:325-325(1992).
CC   -!- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF047007; AAD12780.1; -.
DR   EMBL; AF047006; AAD12780.1; JOINED.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues;
KW   Amidation.
FT   NON_TER       1      1
FT   PEPTIDE      <1      26       PACAP-RELATED PEPTIDE.
FT   PEPTIDE       29     55       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                 POLYPEPTIDE-27.
FT   PEPTIDE       29     66       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                 POLYPEPTIDE-38.
FT   MOD_RES       55     55       AMIDATION (G-56 PROVIDE AMIDE GROUP).
FT   MOD_RES       66     66       AMIDATION (G-67 PROVIDE AMIDE GROUP) (BY
FT                                 SIMILARITY).
SQ   SEQUENCE   73 AA;  8249 MW;  F671071E64240588 CRC64;

  Query Match             74.1%;  Score 106;  DB 1;  Length 73;
  Best Local Similarity   70.4%;  Pred. No. 4.7e-09;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db         29 HSDGIFTDSYSRYRKQMAVKKYLAAVL 55


RESULT 17
PACA_RANRI
ID   PACA_RANRI     STANDARD;      PRT;   171 AA.
AC   Q09169; Q9I8R7; Q9I8R8;
DT   01-NOV-1995 (Rel. 32, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE   releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH);
DE   Pituitary adenylate cyclase activating polypeptide-27 (PACAP-27)
DE   (PACAP27); Pituitary adenylate cyclase activating polypeptide-38
DE   (PACAP-38) (PACAP38)].
GN   ADCYAP1.
OS   Rana ridibunda (Laughing frog) (Marsh frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae; Rana.
OX   NCBI_TaxID=8406;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20273955; PubMed=10813784;
RA   Alexandre D., Vaudry H., Jegou S., Anouar Y.;
RT   "Structure and distribution of the mRNAs encoding pituitary adenylate
RT   cyclase-activating polypeptide and growth hormone-releasing
RT   hormone-like peptide in the frog, Rana ridibunda.";
RL   J. Comp. Neurol. 421:234-246(2000).
RN   [2]
RP   SEQUENCE OF 127-164.
RC   TISSUE=Brain;
RX   MEDLINE=92063899; PubMed=1720095;
RA   Chartrel N., Tonon M.-C., Vaudry H., Conlon J.M.;
RT   "Primary structure of frog pituitary adenylate cyclase-activating
RT   polypeptide (PACAP) and effects of ovine PACAP on frog pituitary.";
RL   Endocrinology 129:3367-3371(1991).
CC   -!- FUNCTION: Primary role of GRF is to release GH from the pituitary.
CC   -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC       neuromodulator. Stimulates adenylate cyclase in pituitary cells.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=1;
CC         IsoId=Q09169-1; Sequence=Displayed;
CC       Name=2;
CC         IsoId=Q09169-2; Sequence=VSP_001761;
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF221632; AAF74570.1; -.
DR   EMBL; AF221633; AAF74571.1; -.
DR   PIR; A49165; A49165.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL        1     22       POTENTIAL.
FT   PROPEP       23     76
FT   CHAIN        79     124      GROWTH HORMONE-RELEASING FACTOR.
FT   CHAIN       127     164      PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE-38.
FT   CHAIN       127     153      PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE-27.
FT   MOD_RES     164     164      AMIDATION (G-165 PROVIDE AMIDE GROUP)
FT                                (BY SIMILARITY).
FT   VARSPLIC     78     110      RHADDLLNKAYRNLLGQLSARKYLHTLMAKHLG -> S
FT                                (in isoform 2).
FT                                /FTId=VSP_001761.
SQ   SEQUENCE   171 AA;  19679 MW;  A9F0E841FA840907 CRC64;

  Query Match             74.1%;  Score 106;  DB 1;  Length 171;
  Best Local Similarity   70.4%;  Pred. No. 1.2e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        127 HSDGIFTDSYSRYRKQMAVKKYLAAVL 153


RESULT 18
PACA_ONCNE
ID   PACA_ONCNE     STANDARD;      PRT;   173 AA.
AC   P41585;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
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```
DE   Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE   releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH);
DE   Pituitary adenylate cyclase activating polypeptide (PACAP)].
OS   Oncorhynchus nerka (Sockeye salmon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8023;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=Brain;
RX   MEDLINE=93345532; PubMed=8344311;
RA   Parker D.B., Coe I.R., Dixon G.H., Sherwood N.M.;
RT   "Two salmon neuropeptides encoded by one brain cDNA are structurally
RT   related to members of the glucagon superfamily.";
RL   Eur. J. Biochem. 215:439-448(1993).
CC   -!- FUNCTION: Primary role of GHRH is to release GH from the
CC       pituitary.
CC   -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC       neuromodulator.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=Long;
CC         IsoId=P41585-1; Sequence=Displayed;
CC       Name=Short;
CC         IsoId=P41585-2; Sequence=VSP_001762, VSP_001763;
CC         Note=Lacks the GHRH-like sequence;
CC   -!- POLYMORPHISM: Four clones were identified that had nucleotide
CC       differences.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X73233; CAA51705.1; ALT_SEQ.
DR   PIR; S34767; S34767.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing; Polymorphism.
FT   SIGNAL        1     22       POTENTIAL.
FT   PROPEP       23     80
FT   PEPTIDE      82    126       GROWTH HORMONE-RELEASING FACTOR.
FT   PEPTIDE     129    166       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE.
FT   MOD_RES     166    166       AMIDATION (G-167 PROVIDE AMIDE GROUP)
FT                                (POTENTIAL).
FT   VARSPLIC     78     78       G -> S (in isoform Short).
FT                                /FTId=VSP_001762.
FT   VARSPLIC     79    113       Missing (in isoform Short).
FT                                /FTId=VSP_001763.
FT   VARIANT      22     22       S -> C.
FT   VARIANT      61     61       P -> S.
FT   VARIANT      78     78       G -> R.
FT   VARIANT     122    122       T -> S.
FT   VARIANT     165    165       N -> S.
FT   VARIANT     171    171       G -> A.
SQ   SEQUENCE   173 AA;  19704 MW;  2B0B554F43C738F2 CRC64;

  Query Match             74.1%;  Score 106;  DB 1;  Length 173;
  Best Local Similarity   70.4%;  Pred. No. 1.2e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        129 HSDGIFTDSYSRYRKQMAVKKYLAAVL 155


RESULT 19
PACA_MOUSE
ID   PACA_MOUSE     STANDARD;      PRT;   175 AA.
AC   O70176;
DT   16-OCT-2001 (Rel. 40, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE   [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE   activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE   cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN   ADCYAP1 OR PACAP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=129/SvJ;
RX   MEDLINE=98241502; PubMed=9573339;
RA   Yamamoto K., Hashimoto H., Hagihara N., Nishino A., Fujita T.,
RA   Matsuda T., Baba A.;
RT   "Cloning and characterization of the mouse pituitary adenylate
RT   cyclase-activating polypeptide (PACAP) gene.";
RL   Gene 211:63-69(1998).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6; TISSUE=Brain;
RX   MEDLINE=22388257; PubMed=12477932;
RA   Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA   Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA   Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA   Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA   Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA   Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA   Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA   Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA   Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA   Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA   Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA   Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA   Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA   Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA   Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA   Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA   Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT   "Generation and initial analysis of more than 15,000 full-length
RT   human and mouse cDNA sequences.";
RL   Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
CC   -!- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; AB010149; BAA28355.1; -.
DR   EMBL; BC057344; AAH57344.1; -.
DR   MGD; MGI:105094; Adcyap1.
DR   GO; GO:0045786; P:negative regulation of cell cycle; IDA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
```

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DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     24       POTENTIAL.
FT   PROPEP       25     78
FT   PEPTIDE      81    128       PACAP-RELATED PEPTIDE.
FT   PEPTIDE     131    157       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-27.
FT   PEPTIDE     131    168       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-38.
FT   MOD_RES     157    157       AMIDATION (G-158 PROVIDE AMIDE GROUP) (BY
FT                                SIMILARITY).
FT   MOD_RES     168    168       AMIDATION (G-169 PROVIDE AMIDE GROUP) (BY
FT                                SIMILARITY).
SQ   SEQUENCE   175 AA;  19381 MW;  D0E2007DB0C6E8C2 CRC64;

  Query Match             74.1%;  Score 106;  DB 1;  Length 175;
  Best Local Similarity   70.4%;  Pred. No. 1.2e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        131 HSDGIFTDSYSRYRKQMAVKKYLAAVL 157


RESULT 20
PACA_RAT
ID   PACA_RAT       STANDARD;      PRT;   175 AA.
AC   P13589;
DT   01-JAN-1990 (Rel. 13, Created)
DT   01-MAR-1992 (Rel. 21, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE   [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE   activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE   cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN   ADCYAP1.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Brain;
RX   MEDLINE=91097560; PubMed=2268329;
RA   Ogi K., Kimura C., Onda H., Arimura A., Fujino M.;
RT   "Molecular cloning and characterization of cDNA for the precursor of
RT   rat pituitary adenylate cyclase activating polypeptide (PACAP).";
RL   Biochem. Biophys. Res. Commun. 173:1271-1279(1990).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Wistar; TISSUE=Testis;
RX   MEDLINE=95136947; PubMed=7835287;
RA   Hurley J.D., Gardiner J.V., Jones P.M., Bloom S.R.;
RT   "Cloning and molecular characterization of complementary
RT   deoxyribonucleic acid corresponding to a novel form of pituitary
RT   adenylate cyclase-activating polypeptide messenger ribonucleic acid
RT   in the rat testis.";
RL   Endocrinology 136:550-557(1995).
RN   [3]
RP   SEQUENCE OF 131-168.
RX   MEDLINE=90026436; PubMed=2803320;
RA   Miyata A., Arimura A., Dahl R.R., Minamino N., Uehara A., Jiang A.,
RA   Culler M.D., Coy D.H.;
RT   "Isolation of a novel 38 residue-hypothalamic polypeptide which
RT   stimulates adenylate cyclase in pituitary cells.";
RL   Biochem. Biophys. Res. Commun. 164:567-574(1989).
CC   -!- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between  the Swiss Institute of Bioinformatics  and the  EMBL outstation -
CC   the European Bioinformatics Institute.  There are no  restrictions on  its
CC   use  by  non-profit  institutions as long  as its content  is  in  no  way
CC   modified and this statement is not removed.  Usage  by  and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; M63006; AAA41791.1; -.
DR   EMBL; X80290; CAA56564.1; -.
DR   PIR; A37786; A37786.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     24       POTENTIAL.
FT   PROPEP       25     78
FT   PEPTIDE      81    128       PACAP-RELATED PEPTIDE.
FT   PEPTIDE     131    157       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-27.
FT   PEPTIDE     131    168       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-38.
FT   MOD_RES     157    157       AMIDATION (G-158 PROVIDE AMIDE GROUP).
FT   MOD_RES     168    168       AMIDATION (G-169 PROVIDE AMIDE GROUP).
FT   CONFLICT      7      7       A -> R (IN REF. 2).
FT   CONFLICT     26     26       P -> L (IN REF. 2).
SQ   SEQUENCE   175 AA;  19557 MW;  0398946896602B04 CRC64;

  Query Match             74.1%;  Score 106;  DB 1;  Length 175;
  Best Local Similarity   70.4%;  Pred. No. 1.2e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        131 HSDGIFTDSYSRYRKQMAVKKYLAAVL 157


RESULT 21
PACA_HUMAN
ID   PACA_HUMAN     STANDARD;      PRT;   176 AA.
AC   P18509;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE   [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE   activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE   cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN   ADCYAP1.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Testis;
RX   MEDLINE=92153305; PubMed=1739432;
RA   Ohkubo S., Kimura C., Ogi K., Okazaki K., Hosoya M., Onda H.,
RA   Miyata A., Arimura A., Fujino M.;
RT   "Primary structure and characterization of the precursor to human
RT   pituitary adenylate cyclase activating polypeptide.";
RL   DNA Cell Biol. 11:21-30(1992).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92110383; PubMed=1730060;
RA   Hosoya M., Kimura C., Ogi K., Ohkubo S., Miyamoto Y., Kugoh H.,
RA   Shimizu M., Onda H., Oshimura M., Arimura A., Fujino M.;
RT   "Structure of the human pituitary adenylate cyclase activating
RT   polypeptide (PACAP) gene.";
RL   Biochim. Biophys. Acta 1129:199-206(1992).
RN   [3]
RP   SEQUENCE OF 114-176 FROM N.A.
```

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RX   MEDLINE=90147744; PubMed=2302217;
RA   Kimura C., Ohkubo S., Ogi K., Hosoya M., Itoh Y., Onda H., Miyata A.,
RA   Jiang L., Dahl R.R., Stibbs H.H., Arimura A., Fujino M.;
RT   "A novel peptide which stimulates adenylate cyclase: molecular
RT   cloning and characterization of the ovine and human cDNAs.";
RL   Biochem. Biophys. Res. Commun. 166:81-89(1990).
RN   [4]
RP   STRUCTURE BY NMR OF 132-169.
RX   MEDLINE=93277870; PubMed=8504103;
RA   Wray V., Kakoschke C., Nokihara K., Naruse S.;
RT   "Solution structure of pituitary adenylate cyclase activating
RT   polypeptide by nuclear magnetic resonance spectroscopy.";
RL   Biochemistry 32:5832-5841(1993).
RN   [5]
RP   STRUCTURE BY NMR OF 132-158.
RX   MEDLINE=93131468; PubMed=1483839;
RA   Inooka H., Endo S., Kitada C., Mizuta E., Fujino M.;
RT   "Pituitary adenylate cyclase activating polypeptide (PACAP) with 27
RT   residues. Conformation determined by 1H NMR and CD spectroscopies and
RT   distance geometry in 25% methanol solution.";
RL   Int. J. Pept. Protein Res. 40:456-464(1992).
CC   -!- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; S83513; AAB21470.1; -.
DR   EMBL; X60435; CAA42962.1; -.
DR   PIR; I84638; I84638.
DR   PDB; 1GEA; 21-JAN-03.
DR   Genew; HGNC:241; ADCYAP1.
DR   MIM; 102980; -.
DR   GO; GO:0005625; C:soluble fraction; TAS.
DR   GO; GO:0005184; F:neuropeptide hormone activity; TAS.
DR   GO; GO:0007190; P:adenylate cyclase activation; TAS.
DR   GO; GO:0007267; P:cell-cell signaling; TAS.
DR   GO; GO:0007565; P:pregnancy; TAS.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Polymorphism; 3D-structure.
FT   SIGNAL        1     24       POTENTIAL.
FT   PROPEP       25     79
FT   PEPTIDE      82    129       PACAP-RELATED PEPTIDE.
FT   PEPTIDE     132    158       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-27.
FT   PEPTIDE     132    169       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-38.
FT   MOD_RES     158    158       AMIDATION (G-159 PROVIDE AMIDE GROUP).
FT   MOD_RES     169    169       AMIDATION (G-170 PROVIDE AMIDE GROUP).
FT   VARIANT      54     54       G -> D (in dbSNP:2856966).
FT                                /FTId=VAR_014597.
SQ   SEQUENCE   176 AA;  18777 MW;  6BBDD4AD29510E1D CRC64;

  Query Match          74.1%;  Score 106;  DB 1;  Length 176;
  Best Local Similarity  70.4%;  Pred. No. 1.2e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        132 HSDGIFTDSYSRYRKQMAVKKYLAAVL 158
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RESULT 22
PACA_SHEEP
ID   PACA_SHEEP     STANDARD;      PRT;   176 AA.
AC   P16613;
DT   01-AUG-1990 (Rel. 15, Created)
DT   01-AUG-1990 (Rel. 15, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE   [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE   activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE   cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN   ADCYAP1.
OS   Ovis aries (Sheep).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Caprinae; Ovis.
OX   NCBI_TaxID=9940;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Hypothalamus;
RX   MEDLINE=90147744; PubMed=2302217;
RA   Kimura C., Ohkubo S., Ogi K., Hosoya M., Itoh Y., Onda H.,
RA   Miyata A., Jiang L., Dahl R.D., Stibbs H.H., Arimura A., Fujino M.;
RT   "A novel peptide which stimulates adenylate cyclase: molecular
RT   cloning and characterization of the ovine and human cDNAs.";
RL   Biochem. Biophys. Res. Commun. 166:81-89(1990).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92153305; PubMed=1739432;
RA   Ohkubo S., Kimura C., Ogi K., Okazaki K., Hosoya M., Onda H.,
RA   Miyata A., Arimura A., Fujino M.;
RT   "Primary structure and characterization of the precursor to human
RT   pituitary adenylate cyclase activating polypeptide.";
RL   DNA Cell Biol. 11:21-30(1992).
RN   [3]
RP   SEQUENCE OF 132-158.
RX   MEDLINE=90343780; PubMed=2383262;
RA   Miyata A., Jiang L., Dahl R.D., Kitada C., Kubo K., Fujino M.,
RA   Minamino N., Arimura A.;
RT   "Isolation of a neuropeptide corresponding to the N-terminal 27
RT   residues of the pituitary adenylate cyclase activating polypeptide
RT   with 38 residues (PACAP38).";
RL   Biochem. Biophys. Res. Commun. 170:643-648(1990).
CC   -!- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M32216; AAA31575.1; -.
DR   EMBL; S83511; AAB21469.1; -.
DR   PIR; A34044; A34044.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     24       POTENTIAL.
FT   PROPEP       25     80
FT   PEPTIDE      82    129       PACAP-RELATED PEPTIDE.
FT   PEPTIDE     132    158       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-27.
FT   PEPTIDE     132    169       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-38.
FT   MOD_RES     158    158       AMIDATION (G-159 PROVIDE AMIDE GROUP).
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FT   MOD_RES     169    169       AMIDATION (G-170 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   176 AA;  19459 MW;  FBADC68CA56361C2 CRC64;

  Query Match             74.1%;  Score 106;  DB 1;  Length 176;
  Best Local Similarity   70.4%;  Pred. No. 1.2e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        132 HSDGIFTDSYSRYRKQMAVKKYLAAVL 158


RESULT 23
PACA_CLAMA
ID   PACA_CLAMA     STANDARD;      PRT;   195 AA.
AC   P48144;
DT   01-FEB-1996 (Rel. 33, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE   releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH);
DE   Pituitary adenylate cyclase activating polypeptide (PACAP)].
OS   Clarias macrocephalus (Thai catfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Siluriformes;
OC   Clariidae; Clarias.
OX   NCBI_TaxID=35657;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RX   MEDLINE=95278612; PubMed=7758831;
RA   McRory J.E., Parker D.B., Ngamvongchon S., Sherwood N.M.;
RT   "Sequence and expression of cDNA for pituitary adenylate cyclase
RT   activating polypeptide (PACAP) and growth hormone-releasing hormone
RT   (GHRH)-like peptide in catfish.";
RL   Mol. Cell. Endocrinol. 108:169-177(1995).
CC   -!- FUNCTION: Primary role of GHRH is to release GH from the
CC       pituitary.
CC   -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC       neuromodulator.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Brain, testis, ovary and stomach. Not
CC       pancreas, pituitary, muscle and liver.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X79078; CAA55684.1; -.
DR   PIR; I50456; I50456.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     20       POTENTIAL.
FT   PROPEP       21     77
FT   PEPTIDE      83    127       GROWTH HORMONE-RELEASING FACTOR.
FT   PEPTIDE     130    167       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE.
FT   MOD_RES     167    167       AMIDATION (G-168 PROVIDE AMIDE GROUP)
FT                                (POTENTIAL).
SQ   SEQUENCE   195 AA;  22442 MW;  DD34811FECAA5B51 CRC64;

  Query Match             74.1%;  Score 106;  DB 1;  Length 195;
  Best Local Similarity   70.4%;  Pred. No. 1.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        130 HSDGIFTDSYSRYRKQMAVKKYLAAVL 156


RESULT 24
PACA_URAJA
ID   PACA_URAJA     STANDARD;      PRT;    38 AA.
AC   P81039;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide (PACAP).
OS   Uranoscopus japonicus (Stargazer).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes;
OC   Trachinoidei; Uranoscopidae; Uranoscopus.
OX   NCBI_TaxID=70848;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Brain;
RX   MEDLINE=97356931; PubMed=9213367;
RA   Matsuda K., Takei Y., Katoh J.-I., Shioda S., Arimura A.,
RA   Uchiyama M.;
RT   "Isolation and structural characterization of pituitary adenylate
RT   cyclase activating polypeptide (PACAP)-like peptide from the brain of
RT   a teleost, stargazer, Uranoscopus japonicus.";
RL   Peptides 18:723-727(1997).
CC   -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC       neuromodulator.
CC   -!- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Amidation.
FT   MOD_RES      38     38       AMIDATION (BY SIMILARITY).
SQ   SEQUENCE   38 AA;  4619 MW;  BFCDB19A870AF065 CRC64;

  Query Match             71.3%;  Score 102;  DB 1;  Length 38;
  Best Local Similarity   66.7%;  Pred. No. 9.1e-09;
  Matches   18;  Conservative    6;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| ||||||:||| ::|
Db          1 HSDGIFTDSYSRYRKQMAVQKYLAAVL 27


RESULT 25
PACA_CHICK
ID   PACA_CHICK     STANDARD;      PRT;   175 AA.
AC   P41534;
DT   01-NOV-1995 (Rel. 32, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE   releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH);
DE   Pituitary adenylate cyclase activating polypeptide-27 (PACAP-27)
DE   (PACAP27); Pituitary adenylate cyclase activating polypeptide-38
DE   (PACAP-38) (PACAP38)].
GN   ADCYAP1.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
```

```
RP   SEQUENCE FROM N.A.
RX   MEDLINE=97174314; PubMed=9022048;
RA   McRory J.E., Parker R.L., Sherwood N.M.;
RT   "Expression and alternative processing of a chicken gene encoding
RT   both growth hormone-releasing hormone and pituitary adenylate
RT   cyclase-activating polypeptide.";
RL   DNA Cell Biol. 16:95-102(1997).
RN   [2]
RP   SEQUENCE OF 131-168.
RA   Yasuhara T., Mizuno K., Somogyvari-Vigh A., Komaki G., Arimura A.;
RT   "Isolation and primary structure of chicken PACAP.";
RL   Regul. Pept. 37:326-326(1992).
CC   -!- FUNCTION: Primary role of GRF is to release GH from the pituitary.
CC   -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC       neuromodulator.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=3;
CC       Name=GRF 1-46;
CC         IsoId=P41534-1; Sequence=Displayed;
CC       Name=GRF 1-43;
CC         IsoId=P41534-2; Sequence=VSP_001760;
CC       Name=GRF 33-46;
CC         IsoId=P41534-3; Sequence=VSP_001759;
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U71183; AAB51200.1; -.
DR   EMBL; U71184; AAB51201.1; -.
DR   EMBL; U71185; AAB51202.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL        1     23       POTENTIAL.
FT   PROPEP       24     80
FT   PEPTIDE      83    128       GROWTH HORMONE-RELEASING FACTOR 1-46.
FT   PEPTIDE     131    168       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-38.
FT   PEPTIDE     131    157       PITUITARY ADENYLATE CYCLASE ACTIVATING
FT                                POLYPEPTIDE-27.
FT   MOD_RES     157    157       AMIDATION (G-158 PROVIDE AMIDE GROUP).
FT   MOD_RES     168    168       AMIDATION (G-169 PROVIDE AMIDE GROUP).
FT   VARSPLIC     82    114       RHADGIFSKAYRKLLGQLSARNYLHSLMAKRVG -> S
FT                                (in isoform GRF 33-46).
FT                                /FTId=VSP_001759.
FT   VARSPLIC    115    117       Missing (in isoform GRF 1-43).
FT                                /FTId=VSP_001760.
SQ   SEQUENCE   175 AA;  19560 MW;  0DB54995F0AA9DFB CRC64;

  Query Match             69.9%;  Score 100;  DB 1;  Length 175;
  Best Local Similarity   66.7%;  Pred. No. 9.3e-08;
  Matches   18;  Conservative    5;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              | | :|||:|:| ||||||||||| ::|
Db        131 HIDGIFTDSYSRYRKQMAVKKYLAAVL 157


RESULT 26
EXE2_HELSU
ID   EXE2_HELSU     STANDARD;      PRT;    35 AA.
AC   P04204;
DT   20-MAR-1987 (Rel. 04, Created)
DT   01-MAR-1989 (Rel. 10, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Exendin-2 (Helodermin).
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Anguimorpha; Helodermatidae;
OC   Heloderma.
OX   NCBI_TaxID=8554;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=85076959; PubMed=6439576;
RA   Hoshino M., Yanaihara C., Hong Y.M., Kishida S., Katsumaru Y.,
RA   Vandermeers A., Vandermeers-Piret M.-C., Robberecht P., Christophe J.,
RA   Yanaihara N.;
RT   "Primary structure of helodermin, a VIP-secretin-like peptide
RT   isolated from Gila monster venom.";
RL   FEBS Lett. 178:233-239(1984).
RN   [2]
RP   REVISIONS TO 8-9.
RC   TISSUE=Venom;
RX   MEDLINE=88267739; PubMed=3291692;
RA   Robberecht P., Vandermeers A., Vandermeers-Piret M.-C., Gourlet P.,
RA   Cauvin A., de Neef P., Christophe J.;
RT   "Helodermin-like peptides.";
RL   Ann. N.Y. Acad. Sci. 527:186-203(1988).
RN   [3]
RP   STRUCTURE BY NMR.
RX   MEDLINE=96214501; PubMed=8634236;
RA   Blankenfekdt W., Nokihara K., Naruse S., Lessel U., Schomburg D.,
RA   Wray V.;
RT   "NMR spectroscopic evidence that helodermin, unlike other members of
RT   the secretin/VIP family of peptides, is substantially structured in
RT   water.";
RL   Biochemistry 35:5955-5962(1996).
CC   -!- FUNCTION: Has a VIP/secretin-like biological activity.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom gland.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A01556; HWGHD.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Toxin; Amidation.
FT   MOD_RES      35     35       AMIDATION.
SQ   SEQUENCE   35 AA;  3846 MW;  813008301E7C68FC CRC64;

  Query Match             58.7%;  Score 84;  DB 1;  Length 35;
  Best Local Similarity   55.6%;  Pred. No. 4e-06;
  Matches   15;  Conservative    8;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||:||: |::|  ::|::||| |||
Db          1 HSDAIFTEEYSKLLAKLALQKYLASIL 27


RESULT 27
EXE1_HELSU
ID   EXE1_HELSU     STANDARD;      PRT;    38 AA.
AC   P04203;
DT   20-MAR-1987 (Rel. 04, Created)
DT   20-MAR-1987 (Rel. 04, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Exendin-1 (Helospectins I and II).
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Anguimorpha; Helodermatidae;
OC   Heloderma.
OX   NCBI_TaxID=8554;
RN   [1]
RP   SEQUENCE.
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RC   TISSUE=Venom;
RX   MEDLINE=85006896; PubMed=6207171;
RA   Parker D.S., Raufman J.-P., O'Donohue T.L., Bledsoe M., Yoshida H.,
RA   Pisano J.J.;
RT   "Amino acid sequences of helospectins, new members of the glucagon
RT   superfamily, found in Gila monster venom.";
RL   J. Biol. Chem. 259:11751-11755(1984).
CC   -!- FUNCTION: Has a VIP/secretin-like biological activity.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom gland.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Toxin.
FT   VARIANT      38     38       MISSING (IN HELOSPECTIN II).
SQ   SEQUENCE   38 AA;  4096 MW;  54275BCFC368314A CRC64;

  Query Match             55.2%;  Score 79;  DB 1;  Length 38;
  Best Local Similarity   55.6%;  Pred. No. 2.4e-05;
  Matches   15;  Conservative    6;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||| ||  |::|  ::|::||| |||
Db          1 HSDATFTAEYSKLLAKLALQKYLESIL 27


RESULT 28
SLIB_RAT
ID   SLIB_RAT       STANDARD;      PRT;   104 AA.
AC   P09916;
DT   01-MAR-1989 (Rel. 10, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE   (Growth hormone-releasing hormone) (GHRH).
GN   GHRH.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85163768; PubMed=3920534;
RA   Mayo K.E., Cerelli G.M., Rosenfeld M.G., Evans R.M.;
RT   "Characterization of cDNA and genomic clones encoding the precursor
RT   to rat hypothalamic growth hormone-releasing factor.";
RL   Nature 314:464-467(1985).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92020929; PubMed=1924334;
RA   Gonzalez-Crespo S., Boronat A.;
RT   "Expression of the rat growth hormone-releasing hormone gene in
RT   placenta is directed by an alternative promoter.";
RL   Proc. Natl. Acad. Sci. U.S.A. 88:8749-8753(1991).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Testis;
RX   MEDLINE=95203210; PubMed=7895659;
RA   Srivastava C.H., Monts B.S., Rothrock J.K., Peredo M.J.,
RA   Pescovitz O.H.;
RT   "Presence of a spermatogenic-specific promoter in the rat growth
RT   hormone-releasing hormone gene.";
RL   Endocrinology 136:1502-1508(1995).
RN   [4]
RP   SEQUENCE OF 31-73.
RC   TISSUE=Hypothalamus;
RX   MEDLINE=83219259; PubMed=6406907;
RA   Spiees J., Rivier J., Vale W.;
RT   "Characterization of rat hypothalamic growth hormone-releasing
RT   factor.";
RL   Nature 303:532-535(1983).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ----------------------------------------------------------------------
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CC   ----------------------------------------------------------------------
DR   EMBL; X02319; -; NOT_ANNOTATED_CDS.
DR   EMBL; X02335; CAA26194.1; -.
DR   EMBL; X02320; CAA26194.1; JOINED.
DR   EMBL; X02321; CAA26194.1; JOINED.
DR   EMBL; X02322; CAA26194.1; JOINED.
DR   EMBL; M73486; AAA41220.1; -.
DR   EMBL; U10156; AAC52184.1; -.
DR   PIR; A32731; A32731.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Signal; Hypothalamus.
FT   SIGNAL       1     19
FT   PEPTIDE      31     73       SOMATOLIBERIN.
SQ   SEQUENCE   104 AA;  12266 MW;  F9C17485742B2887 CRC64;

  Query Match             49.7%;  Score 71;  DB 1;  Length 104;
  Best Local Similarity   42.9%;  Pred. No. 0.0011;
  Matches   12;  Conservative    8;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:||:|| :| |:  |:  :| |: |:|
Db         31 HADAIFTSSYRRILGQLYARKLLHEIMN 58


RESULT 29
SLIB_MOUSE
ID   SLIB_MOUSE     STANDARD;      PRT;   103 AA.
AC   P16043;
DT   01-APR-1990 (Rel. 14, Created)
DT   01-APR-1990 (Rel. 14, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE   (Growth hormone-releasing hormone) (GHRH).
GN   GHRH.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90114172; PubMed=2514346;
RA   Suhr S.T., Rahal J.O., Mayo K.E.;
RT   "Mouse growth-hormone-releasing hormone: precursor structure and
RT   expression in brain and placenta.";
RL   Mol. Endocrinol. 3:1693-1700(1989).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90114154; PubMed=2481813;
RA   Frohman M.A., Downs T.R., Chomczynski P., Frohman L.A.;
RT   "Cloning and characterization of mouse growth hormone-releasing
RT   hormone (GRH) complementary DNA: increased GRH messenger RNA levels
RT   in the growth hormone-deficient lit/lit mouse.";
RL   Mol. Endocrinol. 3:1529-1536(1989).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ----------------------------------------------------------------------
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CC   ---------------------------------------------------------------------------
DR   EMBL; M31654; AAA37691.1; -.
DR   EMBL; M31658; AAA37739.1; -.
DR   PIR; A41410; A41410.
DR   MGD; MGI:95709; Ghrh.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Signal; Hypothalamus.
FT   SIGNAL       1     19
FT   PEPTIDE      31    72       SOMATOLIBERIN.
SQ   SEQUENCE   103 AA;  12064 MW;  F3BA6870BF2CA8DC CRC64;

  Query Match             49.0%;  Score 70;  DB 1;  Length 103;
  Best Local Similarity   42.9%;  Pred. No. 0.0016;
  Matches   12;  Conservative    6;  Mismatches   10;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              | ||:|| || :|  |:  :| :  |:|
Db         31 HVDAIFTTNYRKLLSQLYARKVIQDIMN 58


RESULT 30
SLIB_SHEEP
ID   SLIB_SHEEP     STANDARD;      PRT;    44 AA.
AC   P07217;
DT   01-APR-1988 (Rel. 07, Created)
DT   01-APR-1988 (Rel. 07, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth
DE   hormone-releasing hormone) (GHRH).
GN   GHRH.
OS   Ovis aries (Sheep).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Caprinae; Ovis.
OX   NCBI_TaxID=9940;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=85096956; PubMed=6440561;
RA   Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B.,
RA   Guillemin R.;
RT   "Growth hormone-releasing factor from ovine and caprine hypothalamus:
RT   isolation, sequence analysis and total synthesis.";
RL   Biochem. Biophys. Res. Commun. 125:606-614(1984).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation; Hypothalamus.
FT   MOD_RES      44     44       AMIDATION.
SQ   SEQUENCE   44 AA;  5123 MW;  9F907C6769F48030 CRC64;

  Query Match             45.5%;  Score 65;  DB 1;  Length 44;
  Best Local Similarity   35.7%;  Pred. No. 0.0035;
  Matches   10;  Conservative   11;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |:|
Db          1 YADAIFTNSYRKILGQLSARKLLQDIMN 28


RESULT 31
SLIB_BOVIN
ID   SLIB_BOVIN     STANDARD;      PRT;   106 AA.
AC   P01288; Q9MZD4;
DT   21-JUL-1986 (Rel. 01, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE   (Growth hormone-releasing hormone) (GHRH).
GN   GHRH.
OS   Bos taurus (Bovine), and
OS   Capra hircus (Goat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913, 9925;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   SPECIES=Bovine;
RA   Zhou P., Kazmer G.W., Yang X.;
RL   Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
RN   [2]
RP   SEQUENCE OF 31-74.
RC   SPECIES=Bovine;
RX   MEDLINE=84127993; PubMed=6421287;
RA   Esch F., Boehlen P., Ling N., Brazeau P., Guillemin R.;
RT   "Isolation and characterization of the bovine hypothalamic growth
RT   hormone releasing factor.";
RL   Biochem. Biophys. Res. Commun. 117:772-779(1983).
RN   [3]
RP   SEQUENCE OF 31-74.
RC   SPECIES=C.hircus;
RX   MEDLINE=85096956; PubMed=6440561;
RA   Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B.,
RA   Guillemin R.;
RT   "Growth hormone-releasing factor from ovine and caprine hypothalamus:
RT   isolation, sequence analysis and total synthesis.";
RL   Biochem. Biophys. Res. Commun. 125:606-614(1984).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------------
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CC   ---------------------------------------------------------------------------
DR   EMBL; AF242855; AAF89171.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Signal; Amidation; Hypothalamus.
FT   SIGNAL       1     19       POTENTIAL.
FT   PEPTIDE      31    74       SOMATOLIBERIN.
FT   MOD_RES      74    74       AMIDATION (G-75 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   106 AA;  12058 MW;  6584F4F25ABEF178 CRC64;

  Query Match             44.8%;  Score 64;  DB 1;  Length 106;
  Best Local Similarity   35.7%;  Pred. No. 0.013;
  Matches   10;  Conservative   11;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |:|
Db         31 YADAIFTNSYRKVLGQLSARKLLQDIMN 58


RESULT 32
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SECR_CHICK
ID   SECR_CHICK     STANDARD;      PRT;    27 AA.
AC   P01280;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Secretin.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=81114197; PubMed=7460928;
RA   Nilsson A., Carlquist M., Joernvall H., Mutt V.;
RT   "Isolation and characterization of chicken secretin.";
RL   Eur. J. Biochem. 112:383-388(1980).
CC   -!- FUNCTION: Stimulates formation of NaHCO(3)-rich pancreatic juice
CC       and secretion of NaHCO(3)-rich bile and inhibits HCl production by
CC       the stomach.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A01545; SECH.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Amidation.
FT   MOD_RES      27     27       AMIDATION.
SQ   SEQUENCE   27 AA;  3131 MW;  DA0AD71B6361BE7E CRC64;

  Query Match             44.1%;  Score 63;  DB 1;  Length 27;
  Best Local Similarity   33.3%;  Pred. No. 0.0041;
  Matches    9;  Conservative   10;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||  :||  |:::|    |:|:: :::
Db          1 HSDGLFTSEYSKMRGNAQVQKFIQNLM 27


RESULT 33
SLIB_PIG
ID   SLIB_PIG       STANDARD;      PRT;    44 AA.
AC   P01287;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth
DE   hormone-releasing hormone) (GHRH).
GN   GHRH.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Hypothalamus;
RX   MEDLINE=84079886; PubMed=6418166;
RA   Boehlen P., Esch F., Brazeau P., Ling N., Guillemin R.;
RT   "Isolation and characterization of the porcine hypothalamic growth
RT   hormone releasing factor.";
RL   Biochem. Biophys. Res. Commun. 116:726-734(1983).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- MISCELLANEOUS: The carboxyl-amidated somatoliberin is twice as
CC       active as that having a free carboxyl end.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A01553; RHPG.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation; Hypothalamus.
FT   MOD_RES      44     44       AMIDATION.
SQ   SEQUENCE   44 AA;  5110 MW;  1271DC7059F4802E CRC64;

  Query Match             41.3%;  Score 59;  DB 1;  Length 44;
  Best Local Similarity   32.1%;  Pred. No. 0.027;
  Matches    9;  Conservative   12;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |::
Db          1 YADAIFTNSYRKVLGQLSARKLLQDIMS 28


RESULT 34
SLIB_HUMAN
ID   SLIB_HUMAN     STANDARD;      PRT;   108 AA.
AC   P01286;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE   (Growth hormone-releasing hormone) (GHRH) (Somatocrinin) (Sermorelin).
GN   GHRH OR GHRF.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83273612; PubMed=6192430;
RA   Gubler U., Monahan J.J., Lomedico P.T., Bhatt R.S., Collier K.J.,
RA   Hoffman B.J., Boehlen P., Esch F., Ling N., Zeytin F., Brazeau P.,
RA   Poonian M.S., Gage L.P.;
RT   "Cloning and sequence analysis of cDNA for the precursor of human
RT   growth hormone-releasing factor, somatocrinin.";
RL   Proc. Natl. Acad. Sci. U.S.A. 80:4311-4314(1983).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85113171; PubMed=3918305;
RA   Mayo K.E., Cerelli G.M., Lebo R.V., Bruce B.D., Rosenfeld M.G.,
RA   Evans R.M.;
RT   "Gene encoding human growth hormone-releasing factor precursor:
RT   structure, sequence, and chromosomal assignment.";
RL   Proc. Natl. Acad. Sci. U.S.A. 82:63-67(1985).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=21638749; PubMed=11780052;
RA   Deloukas P., Matthews L.H., Ashurst J., Burton J., Gilbert J.G.R.,
RA   Jones M., Stavrides G., Almeida J.P., Babbage A.K., Bagguley C.L.,
RA   Bailey J., Barlow K.F., Bates K.N., Beard L.M., Beare D.M.,
RA   Beasley O.P., Bird C.P., Blakey S.E., Bridgeman A.M., Brown A.J.,
RA   Buck D., Burrill W.D., Butler A.P., Carder C., Carter N.P.,
RA   Chapman J.C., Clamp M., Clark G., Clark L.N., Clark S.Y., Clee C.M.,
RA   Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R.,
RA   Coulson A., Coville G.J., Deadman R., Dhami P.D., Dunn M.,
RA   Ellington A.G., Frankland J.A., Fraser A., French L., Garner P.,
RA   Grafham D.V., Griffiths C., Griffiths M.N.D., Gwilliam R., Hall R.E.,
RA   Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J.,
RA   Huckle E., Hunt A.R., Hunt S.E., Jekosch K., Johnson C.M., Johnson D.,
RA   Kay M.P., Kimberley A.M., King A., Knights A., Laird G.K., Lawlor S.,
RA   Lehvaeslaiho M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D.,
RA   Marsh V.L., Martin S.L., McConnachie L.J., McLay K., McMurray A.A.,
RA   Milne S.A., Mistry D., Moore M.J.F., Mullikin J.C., Nickerson T.,
RA   Oliver K., Parker A., Patel R., Pearce T.A.V., Peck A.I.,
RA   Phillimore B.J.C.T., Prathalingam S.R., Plumb R.W., Ramsay H.,
RA   Rice C.M., Ross M.T., Scott C.E., Sehra H.K., Shownkeen R., Sims S.,
RA   Skuce C.D., Smith M.L., Soderlund C., Steward C.A., Sulston J.E.,
RA   Swann R.M., Sycamore N., Taylor R., Tee L., Thomas D.W., Thorpe A.,
RA   Tracey A., Tromans A.C., Vaudin M., Wall M., Wallis J.M.,
RA   Whitehead S.L., Whittaker P., Willey D.L., Williams L., Williams S.A.,
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RA   Wilming L., Wray P.W., Hubbard T., Durbin R.M., Bentley D.R., Beck S.,
RA   Rogers J.;
RT   "The DNA sequence and comparative analysis of human chromosome 20.";
RL   Nature 414:865-871(2001).
RN   [4]
RP   SEQUENCE OF 6-101 FROM N.A.
RX   MEDLINE=84039819; PubMed=6415488;
RA   Mayo K.E., Vale W., Rivier J., Rosenfeld M.G., Evans R.M.;
RT   "Expression-cloning and sequence of a cDNA encoding human growth
RT   hormone-releasing factor.";
RL   Nature 306:86-88(1983).
RN   [5]
RP   SEQUENCE OF 32-75.
RX   MEDLINE=83016666; PubMed=6812220;
RA   Guillemin R., Brazeau P., Boehlen P., Esch F., Ling N.,
RA   Wehrenberg W.B.;
RT   "Growth hormone-releasing factor from a human pancreatic tumor that
RT   caused acromegaly.";
RL   Science 218:585-587(1982).
RN   [6]
RP   STRUCTURE BY NMR OF 32-60.
RX   MEDLINE=89220972; PubMed=2854259;
RA   Bruenger A.T., Clore G.M., Gronenborn A.M., Karplus M.;
RT   "Solution conformations of human growth hormone releasing factor:
RT   comparison of the restrained molecular dynamics and distance geometry
RT   methods for a system without long-range distance data.";
RL   Protein Eng. 1:399-406(1987).
RN   [7]
RP   STRUCTURE BY NMR OF 32-60.
RX   MEDLINE=87141181; PubMed=3029387;
RA   Clore G.M., Martin S.R., Gronenborn A.M.;
RT   "Solution structure of human growth hormone releasing factor.
RT   Combined use of circular dichroism and nuclear magnetic resonance
RT   spectroscopy.";
RL   J. Mol. Biol. 191:553-561(1986).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- PHARMACEUTICAL: Available under the names Geref (Serono). Geref is
CC       a synthetic acetylated form of residues 1 to 29 of GHRH. Used
CC       for the treatment of growth hormone deficiency.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L29177; -; NOT_ANNOTATED_CDS.
DR   EMBL; L00137; AAA52608.1; -.
DR   EMBL; L00134; AAA52608.1; JOINED.
DR   EMBL; L00135; AAA52608.1; JOINED.
DR   EMBL; L00136; AAA52608.1; JOINED.
DR   EMBL; L00137; AAA52609.1; -.
DR   EMBL; L00134; AAA52609.1; JOINED.
DR   EMBL; L00135; AAA52609.1; JOINED.
DR   EMBL; L00136; AAA52609.1; JOINED.
DR   EMBL; AL031659; CAB41762.1; -.
DR   EMBL; X00094; CAA24955.1; -.
DR   EMBL; X00094; CAA24956.1; -.
DR   PIR; A21902; RHHUS.
DR   Genew; HGNC:4265; GHRH.
DR   MIM; 139190; -.
DR   GO; GO:0005102; F:receptor binding; TAS.
DR   GO; GO:0007267; P:cell-cell signaling; TAS.
DR   GO; GO:0007165; P:signal transduction; TAS.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Signal; Amidation; Hypothalamus.
FT   SIGNAL        1     20
FT   PEPTIDE      32     75       SOMATOLIBERIN.
FT   MOD_RES      75     75       AMIDATION (G-76 PROVIDE AMIDE GROUP).
FT   VARIANT     103    103       Missing (in a second precursor).
FT                                /FTId=VAR_003186.
FT   CONFLICT     92     92       E -> D (IN REF. 4).
SQ   SEQUENCE   108 AA;  12447 MW;  366AE05383488C53 CRC64;

  Query Match             41.3%;  Score 59;  DB 1;  Length 108;
  Best Local Similarity   32.1%;  Pred. No. 0.071;
  Matches    9;  Conservative   12;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |::
Db         32 YADAIFTNSYRKVLGQLSARKLLQDIMS 59


RESULT 35
SLIB_MESAU
ID   SLIB_MESAU     STANDARD;      PRT;   107 AA.
AC   Q60549;
DT   15-JUL-1998 (Rel. 36, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE   (Growth hormone-releasing hormone) (GHRH).
GN   GHRH OR GRF.
OS   Mesocricetus auratus (Golden hamster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC   Mesocricetus.
OX   NCBI_TaxID=10036;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Hypothalamus;
RX   MEDLINE=95218216; PubMed=7703510;
RA   Ono M., Miki N., Demura H., Tadokoro K., Nagafuchi S., Yamada M.;
RT   "Molecular cloning of cDNA encoding the precursor for hamster
RT   hypothalamic growth hormone-releasing factor.";
RL   DNA Seq. 5:93-102(1994).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; D23671; BAA04901.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Signal; Amidation; Hypothalamus.
FT   SIGNAL        1     19       POTENTIAL.
FT   PEPTIDE      31     74       SOMATOLIBERIN.
FT   MOD_RES      74     74       AMIDATION (G-75 PROVIDE AMIDE GROUP) (BY
FT                                SIMILARITY).
SQ   SEQUENCE   107 AA;  12298 MW;  3DEFA8D4B3F37636 CRC64;

  Query Match             40.6%;  Score 58;  DB 1;  Length 107;
  Best Local Similarity   32.1%;  Pred. No. 0.099;
  Matches    9;  Conservative   11;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:|| :| ::  |:: :| |  |::
Db         31 YADAIFTSSYRKVLGQLSARKLLQDIMS 58
```

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RESULT 36
PROA_AQUAE
ID   PROA_AQUAE     STANDARD;      PRT;   435 AA.
AC   O67166;
DT   30-MAY-2000 (Rel. 39, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Gamma-glutamyl phosphate reductase (GPR) (EC 1.2.1.41) (Glutamate-5-
DE   semialdehyde dehydrogenase) (Glutamyl-gamma-semialdehyde
DE   dehydrogenase) (GSA dehydrogenase).
GN   PROA OR AQ_1071.
OS   Aquifex aeolicus.
OC   Bacteria; Aquificae; Aquificales; Aquificaceae; Aquifex.
OX   NCBI_TaxID=63363;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=VF5;
RX   MEDLINE=98196666; PubMed=9537320;
RA   Deckert G., Warren P.V., Gaasterland T., Young W.G., Lenox A.L.,
RA   Graham D.E., Overbeek R., Snead M.A., Keller M., Aujay M., Huber R.,
RA   Feldman R.A., Short J.M., Olson G.J., Swanson R.V.;
RT   "The complete genome of the hyperthermophilic bacterium Aquifex
RT   aeolicus.";
RL   Nature 392:353-358(1998).
CC   -!- FUNCTION: Catalyzes the NADPH dependent reduction of L-gamma-
CC       glutamyl 5-phosphate into L-glutamate 5-semialdehyde and
CC       phosphate. The product spontaneously undergoes cyclization to form
CC       1-pyrroline-5-carboxylate.
CC   -!- CATALYTIC ACTIVITY: L-glutamate 5-semialdehyde + phosphate +
CC       NADP(+) = L-gamma-glutamyl 5-phosphate + NADPH.
CC   -!- PATHWAY: Proline biosynthesis; second step.
CC   -!- SUBCELLULAR LOCATION: Cytoplasmic (By similarity).
CC   -!- SIMILARITY: Belongs to the gamma-glutamyl phosphate reductase
CC       family.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; AE000721; AAC07119.1; ALT_INIT.
DR   HAMAP; MF_00412; -; 1.
DR   InterPro; IPR002086; Aldehyde_dehydr.
DR   InterPro; IPR000965; Gglut_pp_reduct.
DR   Pfam; PF00171; aldedh; 1.
DR   TIGRFAMs; TIGR00407; proA; 1.
DR   PROSITE; PS01223; PROA; FALSE_NEG.
KW   Oxidoreductase; Proline biosynthesis; NADP; Complete proteome.
SQ   SEQUENCE   435 AA;  49118 MW;  BE6500C58A2B2D61 CRC64;

  Query Match             40.6%;  Score 58;  DB 1;  Length 435;
  Best Local Similarity   41.4%;  Pred. No. 0.45;
  Matches   12;  Conservative    7;  Mismatches    6;  Indels    4;  Gaps    1;

Qy          1 HSDAVFTDNYTR----LRKQMAVKKYLNS 25
              ||||: |:|||:    ||:  :   |:|:
Db        346 HSDAIITENYTKAMKFLREVDSAAVYVNA 374


RESULT 37
GLUC_HELSU
ID   GLUC_HELSU     STANDARD;      PRT;   204 AA.
AC   O12956; O12955;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP-1); Glucagon-like peptide 2
DE   (GLP-2)].
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Anguimorpha; Helodermatidae;
OC   Heloderma.
OX   NCBI_TaxID=8554;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORMS LPI AND LPII), AND TISSUE SPECIFICITY.
RC   TISSUE=Intestine, and Pancreas;
RX   MEDLINE=97172477; PubMed=9020121;
RA   Chen Y.E., Drucker D.J.;
RT   "Tissue-specific expression of unique mRNAs that encode proglucagon-
RT   derived peptides or exendin 4 in the lizard.";
RL   J. Biol. Chem. 272:4108-4115(1997).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=LPII;
CC         IsoId=O12956-1; Sequence=Displayed;
CC       Name=LPI;
CC         IsoId=O12956-2; Sequence=VSP_001756, VSP_001757;
CC   -!- TISSUE SPECIFICITY: Isoform LPII is expressed in both pancreas and
CC       intestine. Expression of isoform LPI is restricted to the
CC       pancreas. Neither isoform is detected in salivary glands.
CC   -!- INDUCTION: Produced in the a cells of the islets of Langerhans in
CC       response to a drop in blood sugar concentration.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; U77612; AAB51129.1; -.
DR   EMBL; U77611; AAB51128.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE     21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PROPEP      84    114
FT   PEPTIDE    116    145       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP     149    161
FT   PEPTIDE    164    196       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP     197    204
FT   MOD_RES    145    145       AMIDATION (G-146 PROVIDE AMIDE GROUP).
FT   VARSPLIC   149    149       D -> E (in isoform LPI).
FT                               /FTId=VSP_001756.
FT   VARSPLIC   150    204       Missing (in isoform LPI).
FT                               /FTId=VSP_001757.
SQ   SEQUENCE   204 AA;  23553 MW;  B132E3FE46873E72 CRC64;

  Query Match             39.9%;  Score 57;  DB 1;  Length 204;
  Best Local Similarity   32.1%;  Pred. No. 0.28;
  Matches    9;  Conservative    9;  Mismatches   10;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:|  || :| :|   :| :::|  ::|
Db        164 HADGTFTSDYNQLLDDIATQEFLKWLIN 191


RESULT 38
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GLUC_CHICK
ID   GLUC_CHICK     STANDARD;      PRT;   206 AA.
AC   P01277; Q91410;
DT   21-JUL-1986 (Rel. 01, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
OS   Gallus gallus (Chicken), and
OS   Meleagris gallopavo (Common turkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031, 9103;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORM PANCREATIC).
RC   SPECIES=Chicken; TISSUE=Pancreas;
RX   MEDLINE=90249492; PubMed=2338135;
RA   Hasegawa S., Terazono K., Nata K., Takada T., Yamamoto H.,
RA   Okamoto H.;
RT   "Nucleotide sequence determination of chicken glucagon precursor
RT   cDNA. Chicken preproglucagon does not contain glucagon-like peptide
RT   II.";
RL   FEBS Lett. 264:117-120(1990).
RN   [2]
RP   SEQUENCE FROM N.A. (ISOFORM INTESTINAL).
RC   SPECIES=Chicken; TISSUE=Intestinal mucosa;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
RN   [3]
RP   SEQUENCE OF 55-83.
RC   SPECIES=Chicken;
RX   MEDLINE=76069271; PubMed=1194290;
RA   Pollock H.G., Kimmel J.R.;
RT   "Chicken glucagon. Isolation and amino acid sequence studies.";
RL   J. Biol. Chem. 250:9377-9380(1975).
RN   [4]
RP   COMPOSITION, AND SEQUENCE OF 55-83.
RC   SPECIES=M.gallopavo;
RX   MEDLINE=73074118; PubMed=4645932;
RA   Markussen J., Frandsen E.K., Heding L.G., Sundby F.;
RT   "Turkey glucagon: crystallization, amino acid composition and
RT   immunology.";
RL   Horm. Metab. Res. 4:360-363(1972).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=Intestinal;
CC         IsoId=P01277-1; Sequence=Displayed;
CC       Name=Pancreatic;
CC         IsoId=P01277-2; Sequence=VSP_001753, VSP_001754;
CC         Note=Has been shown to exist only in chicken so far;
CC   -!- INDUCTION: Produced in the a cells of the islets of Langerhans in
CC       response to a drop in blood sugar concentration.
CC   -!- MISCELLANEOUS: The composition of turkey glucagon appears to be
CC       identical with chicken.
CC   -!- SIMILARITY: Belongs to the glucagon family.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; Y07539; CAA68827.1; -.
DR   EMBL; S78477; AAB34506.1; -.
DR   PIR; I51301; I51301.
DR   PIR; S09992; GCCH.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL        1     22
FT   PEPTIDE      23     52       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      55     83       GLUCAGON.
FT   PROPEP       86    116
FT   PEPTIDE     118    147       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      151    163
FT   PEPTIDE     166    198       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP      199    206
FT   MOD_RES     147    147       AMIDATION (G-148 PROVIDE AMIDE GROUP).
FT   VARSPLIC    151    151       D -> E (in isoform Pancreatic).
FT                                /FTId=VSP_001753.
FT   VARSPLIC    152    206       Missing (in isoform Pancreatic).
FT                                /FTId=VSP_001754.
SQ   SEQUENCE   206 AA;  23875 MW;  AB299E1B02FC6AA4 CRC64;

  Query Match             39.2%;  Score 56;  DB 1;  Length 206;
  Best Local Similarity   32.1%;  Pred. No. 0.4;
  Matches    9;  Conservative    8;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:|  || :  ::   || |::|  ::|
Db        166 HADGTFTSDINKILDDMAAKEFLKWLIN 193


RESULT 39
SLIB_CYPCA
ID   SLIB_CYPCA     STANDARD;      PRT;    45 AA.
AC   P42692;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth
DE   hormone-releasing hormone) (GHRH).
OS   Cyprinus carpio (Common carp).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Cyprinus.
OX   NCBI_TaxID=7962;
RN   [1]
RP   SEQUENCE, AND SYNTHESIS.
RC   TISSUE=Hypothalamus;
RX   MEDLINE=93116845; PubMed=1475012;
RA   Vaughan J.M., Rivier J., Spiess J., Peng C., Chang J.P., Peter R.E.,
RA   Vale W.;
RT   "Isolation and characterization of hypothalamic growth-hormone
RT   releasing factor from common carp, Cyprinus carpio.";
RL   Neuroendocrinology 56:539-549(1992).
CC   -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC       adenohypophyse to stimulate the secretion of growth hormone.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hypothalamus.
SQ   SEQUENCE   45 AA;  4979 MW;  67C9E8A06B24AE94 CRC64;

  Query Match             37.8%;  Score 54;  DB 1;  Length 45;
  Best Local Similarity   29.6%;  Pred. No. 0.15;
  Matches    8;  Conservative   10;  Mismatches    9;  Indels    0;  Gaps    0;
```

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Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |:| :|   | :   |:: :|||:::: 
Db          1 HADGMFNKAYRKALGQLSARKYLHTLM 27


RESULT 40
SECR_CANFA
ID   SECR_CANFA     STANDARD;      PRT;    27 AA.
AC   P09910;
DT   01-MAR-1989 (Rel. 10, Created)
DT   01-MAR-1989 (Rel. 10, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Secretin.
GN   SCT.
OS   Canis familiaris (Dog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX   NCBI_TaxID=9615;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Intestine;
RX   MEDLINE=87314204; PubMed=3626755;
RA   Shinomura Y., Eng J., Yalow R.S.;
RT   "Dog secretin: sequence and biologic activity.";
RL   Life Sci. 41:1243-1248(1987).
CC   -!- FUNCTION: Stimulates formation of NaHCO(3)-rich pancreatic juice
CC       and secretion of NaHCO(3)-rich bile and inhibits HCl production by
CC       the stomach.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the glucagon family.
DR   PIR; A27267; A27267.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Amidation.
FT   MOD_RES      27     27       AMIDATION.
SQ   SEQUENCE   27 AA;  3070 MW;  2D4015814F955B78 CRC64;

  Query Match             36.4%;  Score 52;  DB 1;  Length 27;
  Best Local Similarity   33.3%;  Pred. No. 0.18;
  Matches    9;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||  ||   :|||:   ::: |  :: 
Db          1 HSDGTFTSELSRLRESARLQRLLQGLV 27


Search completed: February 26, 2004, 10:22:29
Job time : 13 secs
```

GenCore version 5.1.6


OM protein - protein search, using sw model

Run on: February 26, 2004, 10:20:57 ; Search time 40 Seconds
(without alignments)
220.863 Million cell updates/sec

Title: US-09-929-818-1
Perfect score: 143
Sequence: 1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1017041 seqs, 315518202 residues

Total number of hits satisfying chosen parameters: 1017041

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_25:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 143 | 100.0 | 153 | 11 | Q7TSR4 | Q7tsr4 arvicanthis |
| 2 | 143 | 100.0 | 170 | 6 | Q8MI77 | Q8mi77 bos taurus |
| 3 | 143 | 100.0 | 171 | 11 | Q9D2Z7 | Q9d2z7 mus musculu |
| 4 | 128 | 89.5 | 202 | 13 | Q7ZYG8 | Q7zyg8 xenopus lae |
| 5 | 127 | 88.8 | 28 | 13 | Q9PRI9 | Q9pri9 amia calva |
| 6 | 123 | 86.0 | 28 | 13 | Q9PRN8 | Q9prn8 carassius a |
| 7 | 107 | 74.8 | 172 | 13 | Q9DE29 | Q9de29 brachydanio |
| 8 | 106 | 74.1 | 38 | 5 | Q8IU39 | Q8iu39 dugesia jap |
| 9 | 106 | 74.1 | 38 | 5 | Q8IU38 | Q8iu38 hydra magni |
| 10 | 106 | 74.1 | 38 | 5 | Q8IU37 | Q8iu37 sepioteuthi |
| 11 | 106 | 74.1 | 38 | 5 | Q8IU36 | Q8iu36 periplaneta |
| 12 | 106 | 74.1 | 38 | 13 | Q8AYP5 | Q8ayp5 trachurus j |
| 13 | 106 | 74.1 | 38 | 13 | Q8AYP4 | Q8ayp4 acipenser s |
| 14 | 106 | 74.1 | 138 | 13 | Q98SP4 | Q98sp4 oncorhynchu |
| 15 | 106 | 74.1 | 170 | 11 | Q8BJT8 | Q8bjt8 mus musculu |
| 16 | 106 | 74.1 | 171 | 13 | Q9PUF8 | Q9puf8 xenopus lae |
| 17 | 106 | 74.1 | 173 | 13 | Q98SP5 | Q98sp5 oncorhynchu |
| 18 | 106 | 74.1 | 175 | 13 | Q90XZ4 | Q90xz4 ictalurus p |
| 19 | 102 | 71.3 | 175 | 13 | Q98TU3 | Q98tu3 brachydanio |
| 20 | 100 | 69.9 | 89 | 13 | Q98SP6 | Q98sp6 anas platyr |
| 21 | 94 | 65.7 | 19 | 11 | Q9QUN1 | Q9qun1 rattus sp., |
| 22 | 71 | 49.7 | 138 | 11 | P97567 | P97567 rattus norv |
| 23 | 62 | 43.4 | 28 | 6 | Q9XS89 | Q9xs89 equus cabal |
| 24 | 59 | 41.3 | 59 | 6 | Q866F9 | Q866f9 bos mutus g |
| 25 | 53 | 37.1 | 532 | 16 | Q9KVH1 | Q9kvh1 vibrio chol |
| 26 | 52 | 36.4 | 276 | 16 | Q8YZM8 | Q8yzm8 anabaena sp |
| 27 | 52 | 36.4 | 448 | 10 | Q9SEJ6 | Q9sej6 lupinus alb |
| 28 | 51 | 35.7 | 289 | 16 | Q8D2I4 | Q8d2i4 wiggleswort |
| 29 | 50 | 35.0 | 168 | 10 | Q98RQ3 | Q98rq3 guillardia |
| 30 | 50 | 35.0 | 428 | 16 | Q896G4 | Q896g4 clostridium |
| 31 | 49.5 | 34.6 | 255 | 5 | O96202 | O96202 plasmodium |
| 32 | 49 | 34.3 | 372 | 2 | Q7WYL5 | Q7wyl5 bacillus sp |
| 33 | 49 | 34.3 | 485 | 16 | Q8YNN2 | Q8ynn2 anabaena sp |
| 34 | 49 | 34.3 | 665 | 5 | Q8MT78 | Q8mt78 drosophila |
| 35 | 49 | 34.3 | 702 | 5 | Q9V7U2 | Q9v7u2 drosophila |
| 36 | 49 | 34.3 | 1252 | 5 | Q8IAP8 | Q8iap8 plasmodium |
| 37 | 48.5 | 33.9 | 213 | 10 | Q84T63 | Q84t63 oryza sativ |
| 38 | 48.5 | 33.9 | 304 | 9 | Q858K7 | Q858k7 yersinia pe |
| 39 | 48.5 | 33.9 | 346 | 2 | O87156 | O87156 vibrio chol |
| 40 | 48 | 33.6 | 114 | 5 | Q8WTJ4 | Q8wtj4 caenorhabdi |
| 41 | 48 | 33.6 | 168 | 10 | Q84VN4 | Q84vn4 arabidopsis |
| 42 | 48 | 33.6 | 194 | 5 | Q23346 | Q23346 caenorhabdi |
| 43 | 48 | 33.6 | 194 | 5 | Q23061 | Q23061 caenorhabdi |
| 44 | 48 | 33.6 | 244 | 2 | O30502 | O30502 bacillus su |
| 45 | 48 | 33.6 | 249 | 5 | O45909 | O45909 caenorhabdi |

ALIGNMENTS

RESULT 1
Q7TSR4
ID Q7TSR4 PRELIMINARY; PRT; 153 AA.
AC Q7TSR4;
DT 01-OCT-2003 (TrEMBLrel. 25, Created)
DT 01-OCT-2003 (TrEMBLrel. 25, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Vasoactive intestinal polypeptide (Fragment).
OS Arvicanthis ansorgei.
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
OC Arvicanthis.
OX NCBI_TaxID=204747;
RN [1]
RP SEQUENCE FROM N.A.
RA Dardente H., Menet J.S., Tournier B.B., Challet E., Pevet P.,
RA Masson-Pevet M.;
RT "Neuropeptide expression in the suprachiasmatic nuclei of a diurnal
RT rodent: Arvicanthis ansorgei.";
RL Submitted (JAN-2003) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AY225375; AAP15167.1; -.
FT NON_TER 1 1
SQ SEQUENCE 153 AA; 17171 MW; 9C15095D6E147A15 CRC64;

Query Match 100.0%; Score 143; DB 11; Length 153;
Best Local Similarity 100.0%; Pred. No. 3.2e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        108 HSDAVFTDNYTRLRKQMAVKKYLNSILN 135
```

RESULT 2
Q8MI77
ID Q8MI77 PRELIMINARY; PRT; 170 AA.
AC Q8MI77;
DT 01-OCT-2002 (TrEMBLrel. 22, Created)
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)

```
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Vasoactive intestinal polypeptide precursor.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22092342; PubMed=12097482;
RA   Hamelink C., Lee H.-W., Chen Y., Grimaldi M., Eiden L.E.;
RT   "Coincident elevation of cAMP and calcium influx by PACAP-27
RT   synergistically regulates vasoactive intestinal polypeptide gene
RT   transcription through a novel PKA-independent signaling pathway.";
RL   J. Neurosci. 22:5310-5320(2002).
DR   EMBL; AF503910; AAM28152.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Signal.
FT   SIGNAL        1     22       POTENTIAL.
FT   CHAIN        81    107       PHI.
FT   CHAIN       125    152       VIP.
SQ   SEQUENCE   170 AA;  19164 MW;  9C6A6049AF7BFF81 CRC64;

  Query Match             100.0%;  Score 143;  DB 6;  Length 170;
  Best Local Similarity   100.0%;  Pred. No. 3.5e-13;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        125 HSDAVFTDNYTRLRKQMAVKKYLNSILN 152


RESULT 3
Q9D2Z7
ID   Q9D2Z7      PRELIMINARY;      PRT;   171 AA.
AC   Q9D2Z7;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Vasoactive intestinal polypeptide.
GN   VIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Cecum;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK018599; BAB31301.1; -.
DR   MGD; MGI:98933; Vip.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
SQ   SEQUENCE   171 AA;  19135 MW;  134A434DB6DF1254 CRC64;

  Query Match             100.0%;  Score 143;  DB 11;  Length 171;
  Best Local Similarity   100.0%;  Pred. No. 3.5e-13;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ||||||||||||||||||||||||||||
Db        126 HSDAVFTDNYTRLRKQMAVKKYLNSILN 153


RESULT 4
Q7ZYG8
ID   Q7ZYG8      PRELIMINARY;      PRT;   202 AA.
AC   Q7ZYG8;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Hypothetical protein.
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Embryo;
RA   Klein S., Strausberg R.;
RL   Submitted (JAN-2003) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; BC043792; AAH43792.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Hypothetical protein.
SQ   SEQUENCE   202 AA;  22956 MW;  C3899324E96651EF CRC64;

  Query Match             89.5%;  Score 128;  DB 13;  Length 202;
  Best Local Similarity   88.9%;  Pred. No. 7e-11;
  Matches   24;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              |||||||||||:| ||||||||||||:|
Db        131 HSDAVFTDNYSRFRKQMAVKKYLNSVL 157


RESULT 5
Q9PRI9
ID   Q9PRI9      PRELIMINARY;      PRT;    28 AA.
AC   Q9PRI9;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Vasoactive intestinal polypeptide, VIP.
OS   Amia calva (Bowfin), and
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Amiiformes; Amiidae; Amia.
OX   NCBI_TaxID=7924, 8022;
```

```
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=95301172; PubMed=7781967;
RA   Wang Y., Conlon J.M.;
RT   "Purification and structural characterization of vasoactive intestinal
RT   polypeptide from the trout and bowfin.";
RL   Gen. Comp. Endocrinol. 98:94-101(1995).
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   28 AA;  3334 MW;  465B2D7573FF6F21 CRC64;

  Query Match             88.8%;  Score 127;  DB 13;  Length 28;
  Best Local Similarity   85.2%;  Pred. No. 1.3e-11;
  Matches   23;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||:|||||:| ||||||||||||:|
Db          1 HSDAIFTDNYSRFRKQMAVKKYLNSVL 27


RESULT 6
Q9PRN8
ID   Q9PRN8      PRELIMINARY;      PRT;   28 AA.
AC   Q9PRN8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   GVIP=VASOACTIVE intestinal peptide.
OS   Carassius auratus (Goldfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Carassius.
OX   NCBI_TaxID=7957;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=96051491; PubMed=8536941;
RA   Uesaka T., Yano K., Yamasaki M., Ando M.;
RT   "Somatostatin-, vasoactive intestinal peptide-, and granulin-like
RT   peptides isolated from intestinal extracts of goldfish, Carassius
RT   auratus.";
RL   Gen. Comp. Endocrinol. 99:298-306(1995).
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   28 AA;  3278 MW;  E706A67573FF6F2F CRC64;

  Query Match             86.0%;  Score 123;  DB 13;  Length 28;
  Best Local Similarity   85.2%;  Pred. No. 5.1e-11;
  Matches   23;  Conservative    2;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||||||||||:| ||||| ||||||:|
Db          1 HSDAVFTDNYSRYRKQMAAKKYLNSVL 27


RESULT 7
Q9DE29
ID   Q9DE29      PRELIMINARY;      PRT;   172 AA.
AC   Q9DE29;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE   activating polypeptide.
GN   ADCYAP1.
OS   Brachydanio rerio (Zebrafish) (Danio rerio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Fradinger E.A., Sherwood N.M.;
RT   "Characterization of the gene encoding both growth hormone-releasing
RT   hormone (GRF) and pituitary adenylate cyclase-activating polypeptide
RT   (PACAP) in the zebrafish.";
RL   Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF217251; AAG36782.1; -.
DR   ZFIN; ZDB-GENE-020809-4; adcyap1.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
FT   CHAIN        81    125       GROWTH HORMONE-RELEASING HORMONE.
FT   CHAIN       128    165       PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE.
SQ   SEQUENCE   172 AA;  19558 MW;  458117F0042E36DD CRC64;

  Query Match             74.8%;  Score 107;  DB 13;  Length 172;
  Best Local Similarity   74.1%;  Pred. No. 7.7e-08;
  Matches   20;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| |||||:|:| ||||||||||| ::|
Db        128 HSDGVFTDSYSRYRKQMAVKKYLATVL 154


RESULT 8
Q8IU39
ID   Q8IU39      PRELIMINARY;      PRT;   38 AA.
AC   Q8IU39;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide (Fragment).
GN   ADCYAP1.
OS   Dugesia japonica (Planarian).
OC   Eukaryota; Metazoa; Platyhelminthes; Turbellaria; Seriata; Tricladida;
OC   Paludicola; Dugesiidae; Dugesia.
OX   NCBI_TaxID=6161;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Hoshino M., Ogata M., Ikeya K., Watanabe K.;
RT   "Pituitary Adenylate Cyclase Activating Polypeptide (PACAP),
RT   Planarian.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB083649; BAC21155.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   NON_TER      38     38
SQ   SEQUENCE   38 AA;  4655 MW;  BFD29C49770AF065 CRC64;

  Query Match             74.1%;  Score 106;  DB 5;  Length 38;
  Best Local Similarity   70.4%;  Pred. No. 2.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| ||||||||||| ::|
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Db          1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27


RESULT 9
Q8IU38
ID   Q8IU38      PRELIMINARY;      PRT;    38 AA.
AC   Q8IU38;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide (Fragment).
GN   ADCYAP1.
OS   Hydra magnipapillata (Hydra).
OC   Eukaryota; Metazoa; Cnidaria; Hydrozoa; Hydroida; Anthomedusae;
OC   Hydridae; Hydra.
OX   NCBI_TaxID=6085;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Hoshino M., Ogata M., Ikeya K., Fujisawa T.;
RT   "Pituitary Adenylate Cyclase Activating Polypeptide (PACAP), Hydra.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB083650; BAC21156.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   NON_TER      38     38
SQ   SEQUENCE   38 AA;  4655 MW;  BFD29C49770AF065 CRC64;

  Query Match             74.1%;  Score 106;  DB 5;  Length 38;
  Best Local Similarity   70.4%;  Pred. No. 2.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db          1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27


RESULT 10
Q8IU37
ID   Q8IU37      PRELIMINARY;      PRT;    38 AA.
AC   Q8IU37;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide (Fragment).
GN   ADCYAP1.
OS   Sepioteuthis lessoniana (Bigfin reef squid).
OC   Eukaryota; Metazoa; Mollusca; Cephalopoda; Coleoidea; Neocoleoidea;
OC   Decapodiformes; Loliginidae; Sepioteuthis.
OX   NCBI_TaxID=34570;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RA   Hoshino M., Ogata M., Ikeya K., Mihara S.;
RT   "Pituitary Adenylate Cyclase Activating Polypeptide (PACAP), Big fin
RT   reef squid.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB083651; BAC21157.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   NON_TER      38     38
SQ   SEQUENCE   38 AA;  4655 MW;  BFD29C49770AF065 CRC64;

  Query Match             74.1%;  Score 106;  DB 5;  Length 38;
  Best Local Similarity   70.4%;  Pred. No. 2.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db          1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27


RESULT 11
Q8IU36
ID   Q8IU36      PRELIMINARY;      PRT;    38 AA.
AC   Q8IU36;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide (Fragment).
GN   ADCYAP1.
OS   Periplaneta americana (American cockroach).
OC   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC   Neoptera; Orthopteroidea; Dictyoptera; Blattaria; Blattoidea;
OC   Blattidae; Periplaneta.
OX   NCBI_TaxID=6978;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RA   Hoshino M., Ogata M., Ikeya K., Mihara S.;
RT   "Pituitary Adenylate Cyclase Activating Polypeptide (PACAP), American
RT   cockroach.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB083652; BAC21158.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   NON_TER      38     38
SQ   SEQUENCE   38 AA;  4628 MW;  BFC36C49770AF065 CRC64;

  Query Match             74.1%;  Score 106;  DB 5;  Length 38;
  Best Local Similarity   70.4%;  Pred. No. 2.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db          1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27


RESULT 12
Q8AYP5
ID   Q8AYP5      PRELIMINARY;      PRT;    38 AA.
AC   Q8AYP5;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide (Fragment).
GN   ADCYAP1.
OS   Trachurus japonicus (Japanese jack mackerel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Carangoidei;
OC   Carangidae; Trachurus.
OX   NCBI_TaxID=83875;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RA   Hoshino M., Ogata M., Ikeya K., Mihara S.;
RT   "Pituitary Adenylate Cyclase Activating Polypeptide (PACAP), Japanese
RT   horse mackerel.";
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RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB083647; BAC21153.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   NON_TER      38     38
SQ   SEQUENCE   38 AA;  4605 MW;  BFD29C52770AF065 CRC64;

  Query Match             74.1%;  Score 106;  DB 13;  Length 38;
  Best Local Similarity   70.4%;  Pred. No. 2.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db          1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27


RESULT 13
Q8AYP4
ID   Q8AYP4      PRELIMINARY;      PRT;    38 AA.
AC   Q8AYP4;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide (Fragment).
GN   ADCYAP1.
OS   Acipenser schrenckii (Amur sturgeon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Chondrostei; Acipenseriformes; Acipenseridae;
OC   Acipenser.
OX   NCBI_TaxID=111304;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RA   Hoshino M., Ogata M., Ikeya K., Mihara S.;
RT   "Pituitary Adenylate Cyclase Activating Polypeptide (PACAP), Amur
RT   sturgeon.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB083648; BAC21154.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   NON_TER      38     38
SQ   SEQUENCE   38 AA;  4591 MW;  BFD29C40E70AF065 CRC64;

  Query Match             74.1%;  Score 106;  DB 13;  Length 38;
  Best Local Similarity   70.4%;  Pred. No. 2.3e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db          1 HSDGIFTDSYSRYRKQMAVKKYLAAVL 27


RESULT 14
Q98SP4
ID   Q98SP4      PRELIMINARY;      PRT;   138 AA.
AC   Q98SP4;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Pituitary adenylate cyclase-activating polypeptide.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Krueckl S.L., Sherwood N.M.;
RT   "Temporal expression of grf/pacap during rainbow trout development.";
RL   Submitted (JAN-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF343977; AAK28558.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   138 AA;  15697 MW;  B7EE2C9546576FF4 CRC64;

  Query Match             74.1%;  Score 106;  DB 13;  Length 138;
  Best Local Similarity   70.4%;  Pred. No. 8.6e-08;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db         94 HSDGIFTDSYSRYRKQMAVKKYLAAVL 120


RESULT 15
Q8BJT8
ID   Q8BJT8      PRELIMINARY;      PRT;   170 AA.
AC   Q8BJT8;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Pituitary adenylate cyclase activating polypeptide precursor.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Hypothalamus;
RX   MEDLINE=22354683; PubMed=12466851;
RA   The FANTOM Consortium,
RA   the RIKEN Genome Exploration Research Group Phase I & II Team;
RT   "Analysis of the mouse transcriptome based on functional annotation of
RT   60,770 full-length cDNAs.";
RL   Nature 420:563-573(2002).
DR   EMBL; AK079530; BAC37673.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   170 AA;  18764 MW;  C6E8C2C2C8860852 CRC64;

  Query Match             74.1%;  Score 106;  DB 11;  Length 170;
  Best Local Similarity   70.4%;  Pred. No. 1.1e-07;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        131 HSDGIFTDSYSRYRKQMAVKKYLAAVL 157


RESULT 16
Q9PUF8
ID   Q9PUF8      PRELIMINARY;      PRT;   171 AA.
AC   Q9PUF8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
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DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Pituitary adenylate cyclase-activating peptide.
GN   PACAP.
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20419093; PubMed=10965909;
RA   Hu Z., Lelievre V., Tam J., Cheng J.W., Fuenzalida G., Zhou X.,
RA   Waschek J.A.;
RT   "Molecular cloning of growth hormone-releasing hormone/pituitary
RT   adenylyl cyclase-activating polypeptide in the frog Xenopus laevis:
RT   brain distribution and regulation after castration.";
RL   Endocrinology 141:3366-3376(2000).
DR   EMBL; AF187877; AAD56956.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   171 AA;  19702 MW;  C2388FD36F24082C CRC64;

  Query Match             74.1%;  Score 106;  DB 13;  Length 171;
  Best Local Similarity   70.4%;  Pred. No. 1.1e-07;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        127 HSDGIFTDSYSRYRKQMAVKKYLAAVL 153


RESULT 17
Q98SP5
ID   Q98SP5      PRELIMINARY;      PRT;   173 AA.
AC   Q98SP5;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE   activating polypeptide.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Krueckl S.L., Sherwood N.M.;
RT   "Temporal expression of grf/pacap during rainbow trout development.";
RL   Submitted (JAN-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF343976; AAK28557.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
SQ   SEQUENCE   173 AA;  19783 MW;  21D1A06A9C47F780 CRC64;

  Query Match             74.1%;  Score 106;  DB 13;  Length 173;
  Best Local Similarity   70.4%;  Pred. No. 1.1e-07;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        129 HSDGIFTDSYSRYRKQMAVKKYLAAVL 155


RESULT 18
Q90XZ4
ID   Q90XZ4      PRELIMINARY;      PRT;   175 AA.
AC   Q90XZ4;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE   activating polypeptide precursor.
OS   Ictalurus punctatus (Channel catfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Siluriformes;
OC   Ictaluridae; Ictalurus.
OX   NCBI_TaxID=7998;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=21255738; PubMed=11356048;
RA   Small B.C., Nonneman D.;
RT   "Sequence and expression of a cDNA encoding both pituitary adenylate
RT   cyclase activating polypeptide and growth hormone-releasing hormone-
RT   like peptide in channel catfish (Ictalurus punctatus).";
RL   Gen. Comp. Endocrinol. 122:354-363(2001).
DR   EMBL; AF321243; AAK66970.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Signal.
FT   SIGNAL        1     20       POTENTIAL.
FT   CHAIN        84    128       GROWTH HORMONE-RELEASING HORMONE.
FT   CHAIN       131    168       PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE.
SQ   SEQUENCE   175 AA;  20070 MW;  FFE0EA22C68321C9 CRC64;

  Query Match             74.1%;  Score 106;  DB 13;  Length 175;
  Best Local Similarity   70.4%;  Pred. No. 1.1e-07;
  Matches   19;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :|||:|:| |||||||||| ::|
Db        131 HSDGIFTDSYSRYRKQMAVKKYLAAVL 157


RESULT 19
Q98TU3
ID   Q98TU3      PRELIMINARY;      PRT;   175 AA.
AC   Q98TU3;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Adenylate cyclase-activating peptide.
OS   Brachydanio rerio (Zebrafish) (Danio rerio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Ovary;
RA   Wang Y., Ge W.;
RT   "Cloning of a zebrafish ovarian pituitary adenylate cyclase-activating
RT   peptide (PACAP) and regulation of its expression in the ovary.";
RL   Submitted (DEC-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF329730; AAG59830.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
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DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
SQ   SEQUENCE   175 AA;  20025 MW;  B1E527ADD02C7113 CRC64;

  Query Match             71.3%;  Score 102;  DB 13;  Length 175;
  Best Local Similarity   70.4%;  Pred. No. 4.3e-07;
  Matches   19;  Conservative    4;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              ||| :||| |:| |||||||||| ::|
Db        131 HSDGIFTDIYSRYRKQMAVKKYLAAVL 157


RESULT 20
Q98SP6
ID   Q98SP6      PRELIMINARY;      PRT;    89 AA.
AC   Q98SP6;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone-releasing polypeptide/adenylate cyclase-activating
DE   polypeptide (Fragment).
GN   PACAP.
OS   Anas platyrhynchos (Domestic duck).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Anseriformes; Anatidae; Anas.
OX   NCBI_TaxID=8839;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pituitary;
RA   Colitti M., Mirabella N., Squillacioti C., Venturini E.;
RL   Submitted (JAN-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF343119; AAK11148.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   NON_TER      89     89
SQ   SEQUENCE   89 AA;  10263 MW;  B618C2A865B85439 CRC64;

  Query Match             69.9%;  Score 100;  DB 13;  Length 89;
  Best Local Similarity   66.7%;  Pred. No. 4.3e-07;
  Matches   18;  Conservative    5;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSIL 27
              | | :|||:|:| |||||||||| ::|
Db         46 HIDGIFTDSYSRYRKQMAVKKYLAAVL 72


RESULT 21
Q9QUN1
ID   Q9QUN1      PRELIMINARY;      PRT;    19 AA.
AC   Q9QUN1;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   VIP10-28=VASOACTIVE intestinal peptide.
OS   Rattus sp., and
OS   Mus sp.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10118, 10095;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=94006598; PubMed=8402943;
RA   Wershil B.K., Turck C.W., Sreedharan S.P., Yang J., An S., Galli S.J.,
RA   Goetzl E.J.;
RT   "Variants of vasoactive intestinal peptide in mouse mast cells and rat
RT   basophilic leukemia cells.";
RL   Cell. Immunol. 151:369-378(1993).
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
SQ   SEQUENCE   19 AA;  2340 MW;  69537CB4394ADB97 CRC64;

  Query Match             65.7%;  Score 94;  DB 11;  Length 19;
  Best Local Similarity   100.0%;  Pred. No. 6.8e-07;
  Matches   19;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy         10 YTRLRKQMAVKKYLNSILN 28
              |||||||||||||||||||
Db          1 YTRLRKQMAVKKYLNSILN 19


RESULT 22
P97567
ID   P97567      PRELIMINARY;      PRT;   138 AA.
AC   P97567;
DT   01-MAY-1997 (TrEMBLrel. 03, Created)
DT   01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Pre-progrowth hormone releasing factor.
GN   GHRH.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Placenta;
RX   MEDLINE=97188624; PubMed=9037209;
RA   Perez-Riba M., Gonzalez-Crespo S., Boronat A.;
RT   "Differential splicing of the growth hormone-releasing hormone gene in
RT   rat placenta generates a novel pre-proGHRH mRNA that encodes a
RT   different C-terminal flanking peptide.";
RL   FEBS Lett. 402:273-276(1997).
DR   EMBL; U41183; AAC53041.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   138 AA;  16226 MW;  E9FD1336E48F4350 CRC64;

  Query Match             49.7%;  Score 71;  DB 11;  Length 138;
  Best Local Similarity   42.9%;  Pred. No. 0.013;
  Matches   12;  Conservative    8;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:||:|| :| |:  |:  :| |: |:|
Db         31 HADAIFTSSYRRILGQLYARKLLHEIMN 58


RESULT 23
Q9XS89
ID   Q9XS89      PRELIMINARY;      PRT;    28 AA.
AC   Q9XS89;
DT   01-NOV-1999 (TrEMBLrel. 12, Created)
DT   01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone-releasing factor (Fragment).
GN   GHRH.
OS   Equus caballus (Horse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
OX   NCBI_TaxID=9796;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99160468; PubMed=10051323;
RA   Caetano A.R., Pomp D., Murray J.D., Bowling A.T.;
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RT   "Comparative mapping of 18 equine type I genes assigned by somatic
RT   cell hybrid analysis.";
RL   Mamm. Genome 10:271-276(1999).
DR   EMBL; AF097587; AAD25990.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
FT   NON_TER       1      1
FT   NON_TER      28     28
SQ   SEQUENCE   28 AA;  3223 MW;  D988D32A3C8FC531 CRC64;

  Query Match             43.4%;  Score 62;  DB 6;  Length 28;
  Best Local Similarity   37.0%;  Pred. No. 0.056;
  Matches   10;  Conservative   10;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          2 SDAVFTDNYTRLRKQMAVKKYLNSILN 28
              :||:||:|| ::  |:: :| |  |::
Db          1 ADAIFTNNYRKVLGQLSARKILQDIMS 27


RESULT 24
Q866F9
ID   Q866F9      PRELIMINARY;      PRT;    59 AA.
AC   Q866F9;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Growth hormone releasing hormone (Fragment).
OS   Bos mutus grunniens (Yak).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=30521;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Blood;
RA   Ou J.T., Zhong J.C., Chen Z.H., Wu H., Rao K.Q.;
RT   "T-A cloning and sequencing analysis on growth hormone releasing
RT   hormone gene of Yak.";
RL   Submitted (DEC-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY208909; AAO26310.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER      59     59
SQ   SEQUENCE   59 AA;  6705 MW;  D5CA5663B74135A5 CRC64;

  Query Match             41.3%;  Score 59;  DB 6;  Length 59;
  Best Local Similarity   32.1%;  Pred. No. 0.33;
  Matches    9;  Conservative   12;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              ::||:||::| ::  |:: :| |  |::
Db         31 YADAIFTNSYRKVLGQLSARKLLQDIMS 58


RESULT 25
Q9KVH1
ID   Q9KVH1      PRELIMINARY;      PRT;   532 AA.
AC   Q9KVH1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Deoxycytidylate deaminase-related protein.
GN   VC0175.
OS   Vibrio cholerae.
OC   Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales;
OC   Vibrionaceae; Vibrio.
OX   NCBI_TaxID=666;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=El Tor N16961 / Serotype O1;
RX   MEDLINE=20406833; PubMed=10952301;
RA   Heidelberg J.F., Eisen J.A., Nelson W.C., Clayton R.A., Gwinn M.L.,
RA   Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam L.A.,
RA   Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D.,
RA   Ermolaeva M.D., Vamathevan J., Bass S., Qin H., Dragoi I., Sellers P.,
RA   McDonald L., Utterback T., Fleischmann R.D., Nierman W.C., White O.,
RA   Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Venter J.C.,
RA   Fraser C.M.;
RT   "DNA sequence of both chromosomes of the cholera pathogen Vibrio
RT   cholerae.";
RL   Nature 406:477-483(2000).
DR   EMBL; AE004108; AAF93351.1; -.
DR   PIR; B82354; B82354.
DR   TIGR; VC0175; -.
DR   GO; GO:0016787; F:hydrolase activity; IEA.
DR   GO; GO:0008270; F:zinc ion binding; IEA.
DR   InterPro; IPR002125; dCMP/cyt_deam.
DR   Pfam; PF00383; dCMP_cyt_deam; 1.
KW   Complete proteome.
SQ   SEQUENCE   532 AA;  59767 MW;  D39E68A560F19999 CRC64;

  Query Match             37.1%;  Score 53;  DB 16;  Length 532;
  Best Local Similarity   35.7%;  Pred. No. 24;
  Matches   10;  Conservative    9;  Mismatches    7;  Indels    2;  Gaps    1;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSILN 28
              |:|: | |||  :  ::|  : :|::||
Db        496 HADSEFLDNYAEMEAKIA--QSVNALLN 521


RESULT 26
Q8YZM8
ID   Q8YZM8      PRELIMINARY;      PRT;   276 AA.
AC   Q8YZM8;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Two-component response regulator.
GN   ALR0429.
OS   Anabaena sp. (strain PCC 7120).
OC   Bacteria; Cyanobacteria; Nostocales; Nostocaceae; Nostoc.
OX   NCBI_TaxID=103690;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=21595285; PubMed=11759840;
RA   Kaneko T., Nakamura Y., Wolk C.P., Kuritz T., Sasamoto S.,
RA   Watanabe A., Iriguchi M., Ishikawa A., Kawashima K., Kimura T.,
RA   Kishida Y., Kohara M., Matsumoto M., Matsuno A., Muraki A.,
RA   Nakazaki N., Shimpo S., Sugimoto M., Takazawa M., Yamada M.,
RA   Yasuda M., Tabata S.;
RT   "Complete genomic sequence of the filamentous nitrogen-fixing
RT   cyanobacterium Anabaena sp. strain PCC 7120.";
RL   DNA Res. 8:205-213(2001).
DR   EMBL; AP003582; BAB72387.1; -.
DR   PIR; AD1860; AD1860.
DR   HSSP; P06143; 1D4Z.
DR   GO; GO:0005622; C:intracellular; IEA.
DR   GO; GO:0003700; F:transcription factor activity; IEA.
DR   GO; GO:0000156; F:two-component response regulator activity; IEA.
DR   GO; GO:0000160; P:two-component signal transduction system (p. . .; IEA.
DR   InterPro; IPR000005; HTHAraC.
DR   InterPro; IPR001789; Response_reg.
DR   Pfam; PF00165; HTH_AraC; 2.
DR   Pfam; PF00072; response_reg; 1.
DR   PRINTS; PR00032; HTHARAC.
DR   ProDom; PD000039; Response_reg; 1.
DR   SMART; SM00342; HTH_ARAC; 1.
DR   SMART; SM00448; REC; 1.
DR   PROSITE; PS00041; HTH_ARAC_FAMILY_1; 1.
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DR   PROSITE; PS01124; HTH_ARAC_FAMILY_2; 1.
DR   PROSITE; PS50110; RESPONSE_REGULATORY; 1.
KW   Complete proteome.
SQ   SEQUENCE   276 AA;  30967 MW;  5C6E57A71213EEFC CRC64;

  Query Match             36.4%;  Score 52;  DB 16;  Length 276;
  Best Local Similarity   58.8%;  Pred. No. 17;
  Matches   10;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy         11 TRLRKQMAVKKYLNSIL 27
              |||||| :|| : |::|
Db        121 TRLRKQASVKNWCNNLL 137


RESULT 27
Q9SEJ6
ID   Q9SEJ6      PRELIMINARY;      PRT;   448 AA.
AC   Q9SEJ6;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   1-aminocyclopropane-1-carboxylate synthase 5 (EC 4.4.1.14).
GN   ACS5.
OS   Lupinus albus (White lupine).
OC   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
OC   Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids;
OC   eurosids I; Fabales; Fabaceae; Papilionoideae; Genisteae; Lupinus.
OX   NCBI_TaxID=3870;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=cv. Ultra;
RX   MEDLINE=20539411; PubMed=11089679;
RA   Bekman E.P., Saibo N.J., Di Cataldo A., Regalado A.P., Ricardo C.P.,
RA   Rodrigues-Pousada C.;
RT   "Differential expression of four genes encoding 1-aminocyclopropane-1-
RT   caroboxylate synthase in Lupinus albus during germination, and in
RT   response to indole-3-acetic acid and wounding.";
RL   Planta 211:663-672(2000).
CC   -!- COFACTOR: PYRIDOXAL PHOSPHATE (BY SIMILARITY).
CC   -!- SUBUNIT: HOMODIMER (BY SIMILARITY).
CC   -!- MISCELLANEOUS: IN EUKARYOTES THERE ARE TWO ISOZYMES: A CYTOPLASMIC
CC       ONE AND A MITOCHONDRIAL ONE (BY SIMILARITY).
CC   -!- SIMILARITY: BELONGS TO CLASS-I OF PYRIDOXAL-PHOSPHATE-DEPENDENT
CC       AMINOTRANSFERASES.
DR   EMBL; AF119414; AAF22112.1; -.
DR   HSSP; P37821; 1B8G.
DR   GO; GO:0016847; F:1-aminocyclopropane-1-carboxylate synthase . . .; IEA.
DR   GO; GO:0016829; F:lyase activity; IEA.
DR   GO; GO:0008483; F:transaminase activity; IEA.
DR   GO; GO:0009058; P:biosynthesis; IEA.
DR   InterPro; IPR001176; ACC_synthase.
DR   InterPro; IPR004839; Aminotrans_I/II.
DR   InterPro; IPR004838; NHtransf_1_BS.
DR   Pfam; PF00155; aminotran_1_2; 1.
DR   PRINTS; PR00753; ACCSYNTHASE.
DR   PROSITE; PS00105; AA_TRANSFER_CLASS_1; 1.
KW   Lyase; Pyridoxal phosphate.
SQ   SEQUENCE   448 AA;  50326 MW;  06C45544EF938AAE CRC64;

  Query Match             36.4%;  Score 52;  DB 10;  Length 448;
  Best Local Similarity   42.9%;  Pred. No. 29;
  Matches    9;  Conservative    5;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          2 SDAVFTDNYTRLRKQMAVKKY 22
              || |||:|| :  ::   |:|
Db        321 SDKVFTENYIKTNRERLRKRY 341


RESULT 28
Q8D2I4
ID   Q8D2I4      PRELIMINARY;      PRT;   289 AA.
AC   Q8D2I4;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   PurU protein.
GN   PURU OR WIGBR3700.
OS   Wigglesworthia glossinidia brevipalpis.
OC   Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
OC   Enterobacteriaceae; Wigglesworthia.
OX   NCBI_TaxID=36870;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22297718; PubMed=12219091;
RA   Akman L., Yamashita A., Watanabe H., Oshima K., Shiba T., Hattori M.,
RA   Aksoy S.;
RT   "Genome sequence of the endocellular obligate symbiont of tsetse
RT   flies, Wigglesworthia glossinidia.";
RL   Nat. Genet. 32:402-407(2002).
DR   EMBL; AB063522; BAC24516.1; -.
DR   GO; GO:0008864; F:formyltetrahydrofolate deformylase activity; IEA.
DR   GO; GO:0016742; F:hydroxymethyl-, formyl- and related transfe. . .; IEA.
DR   GO; GO:0006189; P:'de novo' IMP biosynthesis; IEA.
DR   GO; GO:0009058; P:biosynthesis; IEA.
DR   InterPro; IPR002376; formyl_transf.
DR   InterPro; IPR004810; PurU.
DR   Pfam; PF00551; formyl_transf; 1.
DR   PRINTS; PR01575; FFH4HYDRLASE.
DR   TIGRFAMs; TIGR00655; PurU; 1.
KW   Complete proteome.
SQ   SEQUENCE   289 AA;  33613 MW;  75A485E84A6829A8 CRC64;

  Query Match             35.7%;  Score 51;  DB 16;  Length 289;
  Best Local Similarity   34.6%;  Pred. No. 26;
  Matches    9;  Conservative    5;  Mismatches   12;  Indels    0;  Gaps    0;

Qy          3 DAVFTDNYTRLRKQMAVKKYLNSILN 28
              | :    | |:     :|||:| |:|
Db        171 DYIILAKYMRILTSSFIKKYINKIIN 196


RESULT 29
Q98RQ3
ID   Q98RQ3      PRELIMINARY;      PRT;   168 AA.
AC   Q98RQ3;
DT   01-OCT-2001 (TrEMBLrel. 18, Created)
DT   01-OCT-2001 (TrEMBLrel. 18, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Hypothetical protein orf168 from chromosome 1.
GN   ORF168.
OS   Guillardia theta (Cryptomonas phi).
OC   Eukaryota; Cryptophyta; Cryptomonadaceae; Guillardia.
OX   NCBI_TaxID=55529;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=21223349; PubMed=11323671;
RA   Douglas S., Zauner S., Fraunholz M., Beaton M., Penny S., Deng L.T.,
RA   Wu X., Reith M., Cavalier-Smith T., Maier U.G.;
RT   "The highly reduced genome of an enslaved algal nucleus.";
RL   Nature 410:1091-1096(2001).
DR   EMBL; AF165818; AAK39893.1; -.
DR   PIR; F90095; F90095.
KW   Hypothetical protein.
SQ   SEQUENCE   168 AA;  20185 MW;  2874CBD53028A3DD CRC64;

  Query Match             35.0%;  Score 50;  DB 10;  Length 168;
  Best Local Similarity   52.6%;  Pred. No. 21;
  Matches   10;  Conservative    3;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          9 NYTRLRKQMAVKKYLNSIL 27
              |  || |   :|||:|||:
Db         31 NERRLFKDFKIKKYVNSII 49


RESULT 30
Q896G4
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ID   Q896G4      PRELIMINARY;      PRT;   428 AA.
AC   Q896G4;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Gamma-glutamyl phosphate reductase (EC 1.2.1.41).
GN   CTC01042.
OS   Clostridium tetani.
OC   Bacteria; Firmicutes; Clostridia; Clostridiales; Clostridiaceae;
OC   Clostridium.
OX   NCBI_TaxID=1513;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Massachusetts / E88;
RX   MEDLINE=22457253; PubMed=12552129;
RA   Brueggemann H., Baeumer S., Fricke W.F., Wiezer A., Liesegang H.,
RA   Decker I., Herzberg C., Martinez-Arias R., Merkl R., Henne A.,
RA   Gottschalk G.;
RT   "The genome sequence of Clostridium tetani, the causative agent of
RT   tetanus disease.";
RL   Proc. Natl. Acad. Sci. U.S.A. 100:1316-1321(2003).
DR   EMBL; AE015939; AAO35626.1; -.
DR   GO; GO:0004350; F:glutamate-5-semialdehyde dehydrogenase acti. . .; IEA.
DR   GO; GO:0016491; F:oxidoreductase activity; IEA.
DR   GO; GO:0008152; P:metabolism; IEA.
DR   GO; GO:0006561; P:proline biosynthesis; IEA.
DR   InterPro; IPR002086; Aldehyde_dehydr.
DR   InterPro; IPR000965; Gglut_pp_reduct.
DR   Pfam; PF00171; aldedh; 1.
DR   PROSITE; PS01223; PROA; 1.
KW   Oxidoreductase; Complete proteome.
SQ   SEQUENCE   428 AA;  46879 MW;  2BD2BF693E0C86C1 CRC64;

  Query Match             35.0%;  Score 50;  DB 16;  Length 428;
  Best Local Similarity   34.6%;  Pred. No. 54;
  Matches    9;  Conservative    7;  Mismatches    4;  Indels    6;  Gaps    1;

Qy          1 HSDAVFTDNYTRLRKQMAVKKYLNSI 26
              ||:|: |:|||        :::|| :
Db        352 HSEAIITENYTN------SQRFLNEV 371


RESULT 31
O96202
ID   O96202      PRELIMINARY;      PRT;   255 AA.
AC   O96202;
DT   01-MAY-1999 (TrEMBLrel. 10, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Ribosomal protein L7/L12, putative.
GN   PFB0545C.
OS   Plasmodium falciparum (isolate 3D7).
OC   Eukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium.
OX   NCBI_TaxID=36329;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=3D7;
RX   MEDLINE=99021743; PubMed=9804551;
RA   Gardner M.J., Tettelin H., Carucci D.J., Cummings L.M., Aravind L.,
RA   Koonin E.V., Shallom S., Mason T., Yu K., Fujii C., Pederson J.,
RA   Shen K., Jing J., Aston C., Lai Z., Schwartz D.C., Pertea M.,
RA   Salzberg S., Zhou L., Sutton G.G., Clayton R., White O., Smith H.O.,
RA   Fraser C.M., Adams M.D., Venter J.C., Hoffman S.L.;
RT   "Chromosome 2 sequence of the human malaria parasite Plasmodium
RT   falciparum.";
RL   Science 282:1126-1132(1998).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   STRAIN=3D7;
RX   MEDLINE=22255705; PubMed=12368864;
RA   Gardner M.J., Hall N., Fung E., White O., Berriman M., Hyman R.W.,
RA   Carlton J.M., Pain A., Nelson K.E., Bowman S., Paulsen I.T., James K.,
RA   Eisen J.A., Rutherford K., Salzberg S.L., Craig A., Kyes S.,
RA   Chan M.-S., Nene V., Shallom S.J., Suh B., Peterson J., Angiuoli S.,
RA   Pertea M., Allen J., Selengut J., Haft D., Mather M.W., Vaidya A.B.,
RA   Martin D.M.A., Fairlamb A.H., Fraunholz M.J., Roos D.S., Ralph S.A.,
RA   McFadden G.I., Cummings L.M., Subramanian G.M., Mungall C.,
RA   Venter J.C., Carucci D.J., Hoffman S.L., Newbold C., Davis R.W.,
RA   Fraser C.M., Barrell B.;
RT   "Genome sequence of the human malaria parasite Plasmodium
RT   falciparum.";
RL   Nature 419:498-511(2002).
DR   EMBL; AE001401; AAC71898.2; -.
DR   PIR; E71612; E71612.
DR   GO; GO:0005622; C:intracellular; IEA.
DR   GO; GO:0005840; C:ribosome; IEA.
DR   GO; GO:0003735; F:structural constituent of ribosome; IEA.
DR   GO; GO:0006412; P:protein biosynthesis; IEA.
DR   InterPro; IPR000206; Ribosomal_L12.
DR   Pfam; PF00542; Ribosomal_L12; 1.
DR   ProDom; PD001326; Ribosomal_L12; 1.
SQ   SEQUENCE   255 AA;  29547 MW;  C7DB688319FC6B81 CRC64;

  Query Match             34.6%;  Score 49.5;  DB 5;  Length 255;
  Best Local Similarity   30.3%;  Pred. No. 38;
  Matches   10;  Conservative    7;  Mismatches    7;  Indels    9;  Gaps    1;

Qy          2 SDAVFTDN---------YTRLRKQMAVKKYLNS 25
              || :|  |         | ::|  : :|||::|
Db         14 SDNIFNKNVKNGHTLLLYNKIRNNLVLKKYVSS 46


RESULT 32
Q7WYL5
ID   Q7WYL5      PRELIMINARY;      PRT;   372 AA.
AC   Q7WYL5;
DT   01-OCT-2003 (TrEMBLrel. 25, Created)
DT   01-OCT-2003 (TrEMBLrel. 25, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   LP1G.21.
OS   Bacillus sphaericus.
OG   Plasmid pLG.
OC   Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
OX   NCBI_TaxID=1421;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Liang J., Yuan Z., Yang Y., Xue J., Berry C., Cai Q.;
RT   "Nucleotide sequence and replication properties of Bacillus sphaericus
RT   cryptic plasmid pLG.";
RL   Submitted (JUN-2003) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY325804; AAP86233.1; -.
KW   Plasmid.
SQ   SEQUENCE   372 AA;  43516 MW;  8036111E85F0583D CRC64;

  Query Match             34.3%;  Score 49;  DB 2;  Length 372;
  Best Local Similarity   36.8%;  Pred. No. 66;
  Matches   14;  Conservative    4;  Mismatches   10;  Indels   10;  Gaps    1;

Qy          1 HSDAVFTDNYTRLRKQMAV----------KKYLNSILN 28
              ||:|||   |  |||:  :          ||| |  |:
Db        283 HSEAVFDTFYIGLRKRQLLVYSGLFKEYAKKYENGDLD 320


RESULT 33
Q8YNN2
ID   Q8YNN2      PRELIMINARY;      PRT;   485 AA.
AC   Q8YNN2;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Hypothetical protein Alr4532.
GN   ALR4532.
OS   Anabaena sp. (strain PCC 7120).
OC   Bacteria; Cyanobacteria; Nostocales; Nostocaceae; Nostoc.
OX   NCBI_TaxID=103690;
RN   [1]
```

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RP   SEQUENCE FROM N.A.
RX   MEDLINE=21595285; PubMed=11759840;
RA   Kaneko T., Nakamura Y., Wolk C.P., Kuritz T., Sasamoto S.,
RA   Watanabe A., Iriguchi M., Ishikawa A., Kawashima K., Kimura T.,
RA   Kishida Y., Kohara M., Matsumoto M., Matsuno A., Muraki A.,
RA   Nakazaki N., Shimpo S., Sugimoto M., Takazawa M., Yamada M.,
RA   Yasuda M., Tabata S.;
RT   "Complete genomic sequence of the filamentous nitrogen-fixing
RT   cyanobacterium Anabaena sp. strain PCC 7120.";
RL   DNA Res. 8:205-213(2001).
DR   EMBL; AP003596; BAB76231.1; -.
DR   PIR; AD2372; AD2372.
KW   Hypothetical protein; Complete proteome.
SQ   SEQUENCE   485 AA;  55415 MW;  B4413290EF45C959 CRC64;

  Query Match             34.3%;  Score 49;  DB 16;  Length 485;
  Best Local Similarity   30.0%;  Pred. No. 86;
  Matches    9;  Conservative   10;  Mismatches    9;  Indels    2;  Gaps    1;

Qy          1 HSDAVFT--DNYTRLRKQMAVKKYLNSILN 28
              :|| : |  : : :  :|  :|||:: :||
Db        126 YSDGIVTSRNTFQKYYEQQELKKYIDEVLN 155


RESULT 34
Q8MT78
ID   Q8MT78      PRELIMINARY;      PRT;   665 AA.
AC   Q8MT78;
DT   01-OCT-2002 (TrEMBLrel. 22, Created)
DT   01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   LD24677p.
GN   CG5522.
OS   Drosophila melanogaster (Fruit fly).
OC   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC   Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
OC   Ephydroidea; Drosophilidae; Drosophila.
OX   NCBI_TaxID=7227;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Berkeley;
RA   Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J.,
RA   Champe M., Chavez C., Dorsett V., Dresnek D., Farfan D., Frise E.,
RA   George R., Gonzalez M., Guarin H., Kronmiller B., Li P., Liao G.,
RA   Miranda A., Mungall C.J., Nunoo J., Pacleb J., Paragas V., Park S.,
RA   Patel S., Phouanenavong S., Wan K., Yu C., Lewis S.E., Rubin G.M.,
RA   Celniker S.;
RL   Submitted (JUN-2002) to the EMBL/GenBank/DDBJ databases.
CC   -!- SIMILARITY: CONTAINS 1 PH DOMAIN.
DR   EMBL; AY118334; AAM48363.1; -.
DR   FlyBase; FBgn0034158; CG5522.
DR   GO; GO:0005085; F:guanyl-nucleotide exchange factor activity; IEA.
DR   GO; GO:0007242; P:intracellular signaling cascade; IEA.
DR   InterPro; IPR001849; PH.
DR   InterPro; IPR001895; RasGRF_CDC25.
DR   InterPro; IPR008937; Ras_GEF.
DR   Pfam; PF00169; PH; 1.
DR   Pfam; PF00617; RasGEF; 1.
DR   SMART; SM00233; PH; 1.
DR   SMART; SM00147; RasGEF; 1.
DR   PROSITE; PS50003; PH_DOMAIN; 1.
DR   PROSITE; PS50009; RASGEF_CAT; 1.
SQ   SEQUENCE   665 AA;  75128 MW;  2876C204E24B8D9D CRC64;

  Query Match             34.3%;  Score 49;  DB 5;  Length 665;
  Best Local Similarity   55.6%;  Pred. No. 1.2e+02;
  Matches   10;  Conservative    2;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          9 NYTRLRKQMAVKKYLNSI 26
              ||  |:|  | :||| ||
Db        361 NYKHLQKHEATQKYLTSI 378
```

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RESULT 35
Q9V7U2
ID   Q9V7U2      PRELIMINARY;      PRT;   702 AA.
AC   Q9V7U2; Q9V7U1;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Hypothetical CG5522 protein.
GN   CG5522.
OS   Drosophila melanogaster (Fruit fly).
OC   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC   Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
OC   Ephydroidea; Drosophilidae; Drosophila.
OX   NCBI_TaxID=7227;
RN   [1]
RP   SEQUENCE FROM N.A. (LONG AND SHORT ISOFORMS).
RC   STRAIN=Berkeley;
RX   MEDLINE=20196006; PubMed=10731132;
RA   Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA   Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA   George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA   Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA   Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA   Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA   Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA   Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA   Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA   Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA   Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA   Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA   de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA   Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA   Durbin K.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.,
RA   Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA   Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA   Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA   Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA   Jalali M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA   Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA   Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA   Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA   Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA   Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,
RA   Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA   Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA   Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA   Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
RA   Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,
RA   Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,
RA   Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA   Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
RA   Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,
RA   Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,
RA   Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;
RT   "The genome sequence of Drosophila melanogaster.";
RL   Science 287:2185-2195(2000).
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=Long;
CC         IsoId=Q9V7U2-1; Sequence=Displayed;
CC       Name=Short;
CC         IsoId=Q9V7U2-2; Sequence=VSP_050201;
CC   -!- SIMILARITY: CONTAINS 1 RASGEF DOMAIN.
CC   -!- SIMILARITY: CONTAINS 1 PH DOMAIN.
DR   EMBL; AE003805; AAF57951.1; -.
DR   EMBL; AE003805; AAF57952.1; -.
DR   FlyBase; FBgn0034158; CG5522.
DR   GO; GO:0005085; F:guanyl-nucleotide exchange factor activity; IEA.
DR   GO; GO:0007242; P:intracellular signaling cascade; IEA.
DR   InterPro; IPR001849; PH.
DR   InterPro; IPR001895; RasGRF_CDC25.
DR   InterPro; IPR008937; Ras_GEF.
DR   Pfam; PF00169; PH; 1.
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DR   Pfam; PF00617; RasGEF; 1.
DR   SMART; SM00233; PH; 1.
DR   SMART; SM00147; RasGEF; 1.
DR   PROSITE; PS50003; PH_DOMAIN; 1.
DR   PROSITE; PS50009; RASGEF_CAT; 1.
KW   Hypothetical protein; Alternative splicing.
FT   DOMAIN       163    346       RASGEF.
FT   DOMAIN       576    687       PH.
FT   VARSPLIC     462    499       KFRSSSLPRNFAEKCQCCIVMIAPGIGTISNKRCRCRR ->
FT                                 N (in isoform Short).
FT                                 /FTId=VSP_050201.
SQ   SEQUENCE   702 AA;  79327 MW;  78B55006306F130E CRC64;

  Query Match             34.3%;  Score 49;  DB 5;  Length 702;
  Best Local Similarity   55.6%;  Pred. No. 1.3e+02;
  Matches   10;  Conservative    2;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          9 NYTRLRKQMAVKKYLNSI 26
              ||  |:|  | :||| ||
Db        361 NYKHLQKHEATQKYLTSI 378


RESULT 36
Q8IAP8
ID   Q8IAP8      PRELIMINARY;      PRT;  1252 AA.
AC   Q8IAP8;
DT   01-MAR-2003 (TrEMBLrel. 23, Created)
DT   01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Hypothetical protein.
GN   PF08_0118.
OS   Plasmodium falciparum (isolate 3D7).
OC   Eukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium.
OX   NCBI_TaxID=36329;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Seeger K., Murphy L., Harris D., Berriman M., Pain A., Hall N.,
RA   Quail M., Barrell B.;
RL   Submitted (SEP-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AL844507; CAD51313.1; -.
DR   InterPro; IPR007087; Znf_C2H2.
DR   PROSITE; PS50157; ZINC_FINGER_C2H2_2; 1.
KW   Hypothetical protein.
SQ   SEQUENCE   1252 AA;  149163 MW;  2FFAD6EC3C6D4782 CRC64;

  Query Match             34.3%;  Score 49;  DB 5;  Length 1252;
  Best Local Similarity   47.4%;  Pred. No. 2.3e+02;
  Matches    9;  Conservative    4;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          8 DNYTRLRKQMAVKKYLNSI 26
              |    |:|:: :|||| |
Db       1117 DKLNDLKKKILIKKYLNEI 1135


RESULT 37
Q84T63
ID   Q84T63      PRELIMINARY;      PRT;  213 AA.
AC   Q84T63;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Hypothetical protein OSJNBb0006O08.17.
GN   OSJNBB0006O08.17.
OS   Oryza sativa (japonica cultivar-group).
OC   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
OC   Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
OC   Ehrhartoideae; Oryzeae; Oryza.
OX   NCBI_TaxID=39947;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=cv. Nipponbare;
RA   Buell C.R., Yuan Q., Ouyang S., Liu J., Gansberger K., Jones K.M.,
RA   Overton II L.L., Tsitrin T., Kim M.M., Bera J.J., Jin S.S.,
RA   Fadrosh D.W., Tallon L.J., Koo H., Zismann V., Hsiao J., Blunt S.,
RA   Vanaken S.S., Riedmuller S.B., Utterback T.T., Feldblyum T.V.,
RA   Yang Q.Q., Haas B.J., Suh B.B., Peterson J.J., Quackenbush J.,
RA   White O., Salzberg S.L., Fraser C.M.;
RT   "Oryza sativa chromosome 3 BAC OSJNBb0006O08 genomic sequence.";
RL   Submitted (MAY-2002) to the EMBL/GenBank/DDBJ databases.
RN   [2]
RP   SEQUENCE FROM N.A.
RC   STRAIN=cv. Nipponbare;
RA   Buell R.;
RL   Submitted (MAR-2003) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AC120506; AAO66545.1; -.
DR   GO; GO:0004525; F:ribonuclease III activity; IEA.
DR   GO; GO:0003723; F:RNA binding; IEA.
DR   GO; GO:0006396; P:RNA processing; IEA.
DR   InterPro; IPR000999; RNase_III.
DR   PROSITE; PS50142; RNASE_3_2; 1.
KW   Hypothetical protein.
SQ   SEQUENCE   213 AA;  22298 MW;  31C7F14259498E70 CRC64;

  Query Match             33.9%;  Score 48.5;  DB 10;  Length 213;
  Best Local Similarity   41.9%;  Pred. No. 44;
  Matches   13;  Conservative    2;  Mismatches   13;  Indels    3;  Gaps    1;

Qy          1 HSDAVFTDNYTRLRKQMAVK---KYLNSILN 28
              | ||:  ||:|||      |   || |   |
Db        182 HIDALTGDNWTRLAHMQQPKLKCKYFNQKQN 212


RESULT 38
Q858K7
ID   Q858K7      PRELIMINARY;      PRT;  304 AA.
AC   Q858K7;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Capsid assembly protein.
OS   Yersinia pestis phage phiA1122.
OC   Viruses; dsDNA viruses, no RNA stage; Caudovirales; Podoviridae;
OC   T7-like viruses.
OX   NCBI_TaxID=227720;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Garcia E., Elliott J.M., Ramanculov E., Chain P.S., Chu M.C.,
RA   Molineux I.J.;
RT   "The genome sequence of Yersinia pestis bacteriophage PhiA1122 reveals
RT   an intimate history with the coliphage T3.";
RL   Submitted (FEB-2003) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY247822; AAP20531.1; -.
SQ   SEQUENCE   304 AA;  33518 MW;  FC392418A3FFE52B CRC64;

  Query Match             33.9%;  Score 48.5;  DB 9;  Length 304;
  Best Local Similarity   47.8%;  Pred. No. 63;
  Matches   11;  Conservative    6;  Mismatches    5;  Indels    1;  Gaps    1;

Qy          5 VFTDNYTRLRKQMAVKKYLNSIL 27
              || |:| |  ::  |:||:|||:
Db        170 VFIDSYIR-GQEALVEKYVNSIV 191


RESULT 39
O87156
ID   O87156      PRELIMINARY;      PRT;  346 AA.
AC   O87156;
DT   01-NOV-1998 (TrEMBLrel. 08, Created)
DT   01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   WbfL protein.
GN   WBFL.
OS   Vibrio cholerae.
OC   Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales;
OC   Vibrionaceae; Vibrio.
OX   NCBI_TaxID=666;
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RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=O22;
RX   MEDLINE=99453293; PubMed=10521656;
RA   Yamasaki S., Shimizu T., Hoshino K., Ho S.-T., Shimada T., Nair G.B.,
RA   Takeda Y.;
RT   "The genes responsible for O-antigen synthesis of Vibrio cholerae O139
RT   are closely related to those of Vibrio cholerae O22.";
RL   Gene 237:321-332(1999).
DR   EMBL; AB012957; BAA33631.1; -.
DR   PIR; T44327; T44327.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0008417; F:fucosyltransferase activity; IEA.
DR   GO; GO:0006486; P:protein amino acid glycosylation; IEA.
DR   InterPro; IPR001503; Glyco_trans_10.
DR   Pfam; PF00852; Glyco_transf_10; 1.
SQ   SEQUENCE   346 AA;  40359 MW;  28690BC3FEFFDA7F CRC64;

  Query Match             33.9%;  Score 48.5;  DB 2;  Length 346;
  Best Local Similarity   35.3%;  Pred. No. 72;
  Matches   12;  Conservative    7;  Mismatches    8;  Indels    7;  Gaps    2;

Qy          1 HSDAVFTDNYTRLRKQMAVKKY------LNSILN 28
              | |  | | : :|:|  |:| |      :|||::
Db         23 HRDN-FVDRFVQLKKAFAIKGYDLSTQDINSIVD 55


RESULT 40
Q8WTJ4
ID   Q8WTJ4      PRELIMINARY;      PRT;   114 AA.
AC   Q8WTJ4;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Hypothetical protein.
GN   H06H21.7.
OS   Caenorhabditis elegans.
OC   Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
OC   Rhabditidae; Peloderinae; Caenorhabditis.
OX   NCBI_TaxID=6239;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Bristol N2;
RX   MEDLINE=99069613; PubMed=9851916;
RA   None;
RT   "Genome sequence of the nematode C. elegans: a platform for
RT   investigating biology. The C. elegans Sequencing Consortium.";
RL   Science 282:2012-2018(1998).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Bristol N2;
RA   Bauer C., Rohlfing T., Ahrens C.;
RT   "The sequence of C. elegans cosmid H06H21.";
RL   Submitted (NOV-1998) to the EMBL/GenBank/DDBJ databases.
RN   [3]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Bristol N2;
RA   Waterston R.;
RT   "Direct Submission.";
RL   Submitted (NOV-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF099920; AAL32226.1; -.
KW   Hypothetical protein.
SQ   SEQUENCE   114 AA;  12902 MW;  98A9AE565B2EB85F CRC64;

  Query Match             33.6%;  Score 48;  DB 5;  Length 114;
  Best Local Similarity   39.1%;  Pred. No. 28;
  Matches    9;  Conservative    8;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          5 VFTDNYTRLRKQMAVKKYLNSIL 27
              :| |||:  :||:|:  :|: :|
Db         47 IFCDNYSLDKKQVALGLFLSILL 69
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Search completed: February 26, 2004, 10:24:37
Job time : 46 secs